



REPAIR PARTS CATALOG FOR SUNNEN® 2 & 4M TUBE HONES

MODEL:

HTA-2000 & HTA-4000

THIS CATALOG COVERS THE ABOVE
MODEL WITH THE FOLLOWING
SERIAL NO. 1015 & UP.



"SUNNEN® AND THE SUNNEN LOGO ARE REGISTERED TRADEMARKS OF SUNNEN PRODUCTS COMPANY."



SUNNEN® PRODUCTS COMPANY
7910 MANCHESTER ROAD • ST. LOUIS, MO 63143, U.S.A. • PHONE: 314-781-2100

X-HTA-2402G

Like any machinery, this equipment may be dangerous if used improperly. Be sure to read and follow instructions for operation of equipment.

INTRODUCTION

Illustrations show all major components in exploded detail. Item numbers on each illustration are keyed to the corresponding parts list, providing a descriptive identification of each part.

The parts lists include assemblies as well as detail parts. An item listed without a part number can be obtained as a component of the complete assembly of which it is a part.

Standard hardware items are listed with complete descriptions, such as Item 17 below. **These may be purchased at your local hardware store**, but it is important to replace an item with one having the same dimensions as the original. In some places brand names and part numbers are shown. These may change depending upon availability.

Sunnen Products Company reserves the right to make changes, without notice, to materials, specifications, colors, designs and accessories included with units.

HOW TO ORDER

When ordering replacement parts be sure to include the following information to ensure prompt shipment of correct parts:

1. The part number and description of each part desired, obtained from this parts catalog.
2. The quantity of each part desired.
3. The voltage, frequency and phase, when ordering electrical parts.
4. The model and serial number of the machine, obtained from the name plate, where there is any question concerning a part.

HOW TO USE THIS PARTS LIST

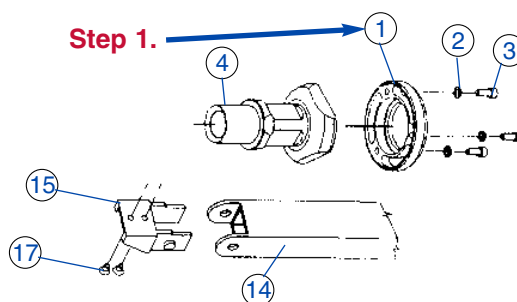
Step 1. – Locate desired part on illustration. Note item number.

Step 2. – Locate item number in the parts list.

Step 3. – If the item has a part number listed, order by part number and the description. A part number in light face type indicates that it is a component of the last preceding part number in bold face type.

Step 4. – If no number is listed, order the part number of the unit of which the desired part is a component.
ORDER ONLY BY PART NUMBER AND DESCRIPTION – NOT by item number.

NOTE: In this manual, parts may be followed by “(For CE Machines)” or “(For Non-CE Machines)” to denote domestic machines from exported machines. The CE version is constructed to meet the requirements of the European market, and is available to any customer.



| | ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------------|-----------|----------------------|----------|--|
| Step 2. | 1 | MVH-4499A | 1 |Spindle Cap includes |
| | 2 | PHSM-405 | 3 |Screw (M6 x 1 x 16 SHCS) |
| Step 3. | 3 | PHW-354 | 3 |Washer (M6) |
| | 4 | MVH-4422 | 1 |Inner Spindle Nose |
| | 14 | PEM-870A | 1 |Cable Carrier includes |
| | 15 | PEM-871 | 1 |Cable Carrier Bracket |
| Step 4. | 16 | PEM872 | 1 |Cable Carrier Bracket |
| | 17 | PHSM-600 | 1 |Screw (M3 x 0,5 x 5mm FHCS) |

GENERAL INFORMATION

The Sunnen® equipment has been designed and engineered for a wide variety of parts within the capacity and limitation of the equipment. With proper care and maintenance this equipment will give years of service.

READ THE FOLLOWING INSTRUCTIONS CAREFULLY AND THOROUGHLY BEFORE UNPACKING, INSPECTING, OR INSTALLING THIS EQUIPMENT.

IMPORTANT: Read any supplemental instructions BEFORE installing this equipment. These supplemental instructions give you important information to assist you with the planning and installation of your Sunnen equipment.

Sunnen Technical Service Department is available to provide telephone assistance for installation, programming, & troubleshooting of your Sunnen equipment. All support is available during normal business hours, 8:00 AM to 4:30 PM Central Time. Emergency breakdown support is available on a 24 hour / 7 day basis.

Review all literature provided with your Sunnen equipment. This literature provides valuable information for proper installation, operation, and maintenance of your equipment. Troubleshooting information can also be found within the Instructions. If you cannot find what you need, call for technical support.

Where applicable, programming information for your Sunnen equipment is also included. Most answers can be found in the literature packaged with your equipment.

Help us help you. When ordering parts, requesting information, or technical assistance about your equipment, please have the following information available:

- Have ALL MANUALS on hand. The Customer Services Representative or Technician will refer to it.
- Have Model Number and Serial Number printed on your equipment Specification Nameplate.
- Where Applicable: Have Drive model and all nameplate data. Motor type, brand, and all nameplate data.

For Troubleshooting, additional information may be required:

- Power distribution information (type - delta, wye, power factor correction; other major switching devices used, voltage fluctuations)
- Installation Wiring (separation of power & control wire; wire type/class used, distance between drive and motor, grounding).
- Use of any optional devices/equipment between the Drive & motor (output chokes, etc.).

For fast service on your orders call:

Sunnen Automotive Customer Service toll free at: 1-800-772-2878

Sunnen Industrial Customer Service toll free at: 1-800-325-3670

Customers outside the USA, contact your local authorized Sunnen Distributor.

Additional information available at: <http://www.sunnen.com> or e-mail: sunnen@sunnen.com

NOTE: Sunnen reserves the right to change or revise specifications and product design in connection with any feature of our products contained herein. Such changes do not entitle the buyer to corresponding changes, improvements, additions, or replacements for equipment, supplies or accessories previously sold. Information contained herein is considered to be accurate based on available information at the time of printing. Should any discrepancy of information arise, Sunnen recommends that user verify the discrepancy with Sunnen before proceeding.

ESD PREVENTION REVIEW

Let's review the basics of a sound static control system and its effective implementation. First, in the three step plan:

1. Always ground yourself when handling sensitive components or assemblies.
2. Always use a conductive or shielded container during storage or transportation. These materials create a Faraday cage which will isolate the contents from static charges.
3. Open ESD safe containers only at a static safe work station.

At the static safe work station, follow these procedures before beginning any work:

- A. Put on your wrist strap or foot grounding devices.
- B. Check all grounding cords to make sure they are properly connected to ground, ensuring the effective dissipation of static charges.
- C. Make sure that your work surface is clean and clear of unnecessary materials, particularly common plastics.
- D. Anti-static bubble wrap has been included for use at the machine when an ESD safe workstation is not available.

You are now properly grounded and ready to begin work. Following these few simple rules and using a little common sense will go a long way toward helping you and your company in the battle against the hazards of static electricity. When you are working with ESD sensitive devices, make sure you:

GROUND
ISOLATE
NEUTRALIZE

SUNNEN® LIMITED PRODUCT WARRANTY

Sunnen® Products Company and its subsidiaries (SPC) warrant that all new SPC honing machines, gaging equipment, tooling, and related equipment will be free of defects in material and/or workmanship for a period of one year from the date of original shipment from SPC.

Upon prompt notification of a defect during the one-year period, SPC will repair, replace, or refund the purchase price, with respect to parts that prove to be defective (as defined above). Any equipment or tooling which is found to be defective from improper use will be returned at the customer's cost or repaired (if possible) at customer's request. Customer shall be charged current rates for all such repair.

Prior to returning any SPC product, an authorization (RMA#) and shipping instructions must be obtained from the Customer Service Department or items sent to SPC will be returned to the customer.

Warranty Limitations and Exclusions This Warranty does not apply to the following:

- Normal maintenance items subject to wear and tear: (belts, fuses, filters, etc).
- Damages resulting from but not limited to:
 - › Shipment to the customer (for items delivered to customer or customer's agent F.O.B., Shipping Point)
 - › Incorrect installation including improper lifting, dropping and/or placement
 - › Incorrect electric power (beyond +/- 10% of rated voltage) including intermittent or random voltage spikes or drops
 - › Incorrect air supply volume and/or pressure and/or contaminated air supply
 - › Electromagnetic or radio frequency interference from surrounding equipment (EMI, RFI)
 - › Storm, lightning, flood or fire damage
 - › Failure to perform regular maintenance as outlined in SPC manuals
 - › Improper machine setup or operation causing a crash to occur
 - › Misapplication of the equipment
 - › Use of non-SPC machines, tooling, abrasive, fixturing, coolant, repair parts, or filtration
 - › Incorrect software installation and/or misuse
 - › Non-authorized customer installed electronics and/or software
 - › Customer modifications to SPC software

THE LIMITED WARRANTY DESCRIBED HEREIN IS EXPRESSLY IN LIEU OF ALL ANY OTHER WARRANTIES. SPC MAKES NO REPRESENTATION OR WARRANTY OF ANY OTHER KIND, EXPRESS OR IMPLIED, WHETHER AS TO MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER MATTER. SPC IS NOT RESPONSIBLE FOR THE IMPROPER USE OF ANY OF ITS PRODUCTS. SPC SHALL NOT BE LIABLE FOR DIRECT, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES INCLUDING BUT NOT LIMITED TO: LOSS OF USE, REVENUE, OR PROFIT. SPC ASSUMES NO LIABILITY FOR PURCHASED ITEMS PRODUCED BY OTHER MANUFACTURERS WHO EXTEND SEPARATE WARRANTIES. REGARDLESS OF ANY RIGHTS AFFORDED BY LAW TO BUYER, SPC'S LIABILITY, IF ANY, FOR ANY AND ALL CLAIMS FOR LOSS OR DAMAGES WITH RESPECT TO THE PRODUCTS, AND BUYER'S SOLE AND EXCLUSIVE REMEDY THEREFORE, SHALL IN ALL EVENTS BE LIMITED IN AMOUNT TO THE PURCHASE PRICE OF THAT PORTION OF THE PRODUCTS WITH RESPECT TO WHICH A VALID CLAIM IS MADE.

Shipping Damages

Except in the case of F.O.B., Buyer's destination shipments, SPC will not be liable for any settlement claims for obvious and/or concealed shipping damages. The customer bears the responsibility to unpack all shipments immediately and inspect for damage. When obvious and/or concealed damage is found, the customer must immediately notify the carrier's agent to make an inspection and file a claim. The customer should retain the shipping container and packing material.

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Any alteration or reverse engineering of the software is expressly forbidden and is in violation of this agreement.

SPC reserves the right to update the software covered by this agreement at any time without prior notice and any such updates are covered by this agreement.

SAFETY INSTRUCTIONS

READ FIRST

This machine, like any equipment, may be dangerous if used improperly. Please read all warnings and instructions before attempting to use this machine.

Always disconnect power at main enclosure before servicing machine.¹

Always wear eye protection when operating this machine.

NEVER open or remove any machine cover or protective guard with power "ON." Always disconnect power at main enclosure before servicing this equipment.¹

DO NOT attempt any repair or maintenance procedure beyond those described in this book. Contact your Sunnen® Field Service Engineer or Technical Services Representative for repairs not covered in these instructions.

Due to the wide variety of machine configurations, all possibilities cannot be described in these instructions. Instructions for safe use and maintenance of optional equipment ordered through Sunnen, will be provided through separate documentation and/or training provided by your Sunnen Field Service Engineer or Technical Services Representative.

DO NOT attempt to defeat any safety device on this machine or on any of the optional equipment.

If specially built automation components are added to this system, be sure that safety is not compromised. If necessary, obtain special enlarged work area safety system from Sunnen Products Co.

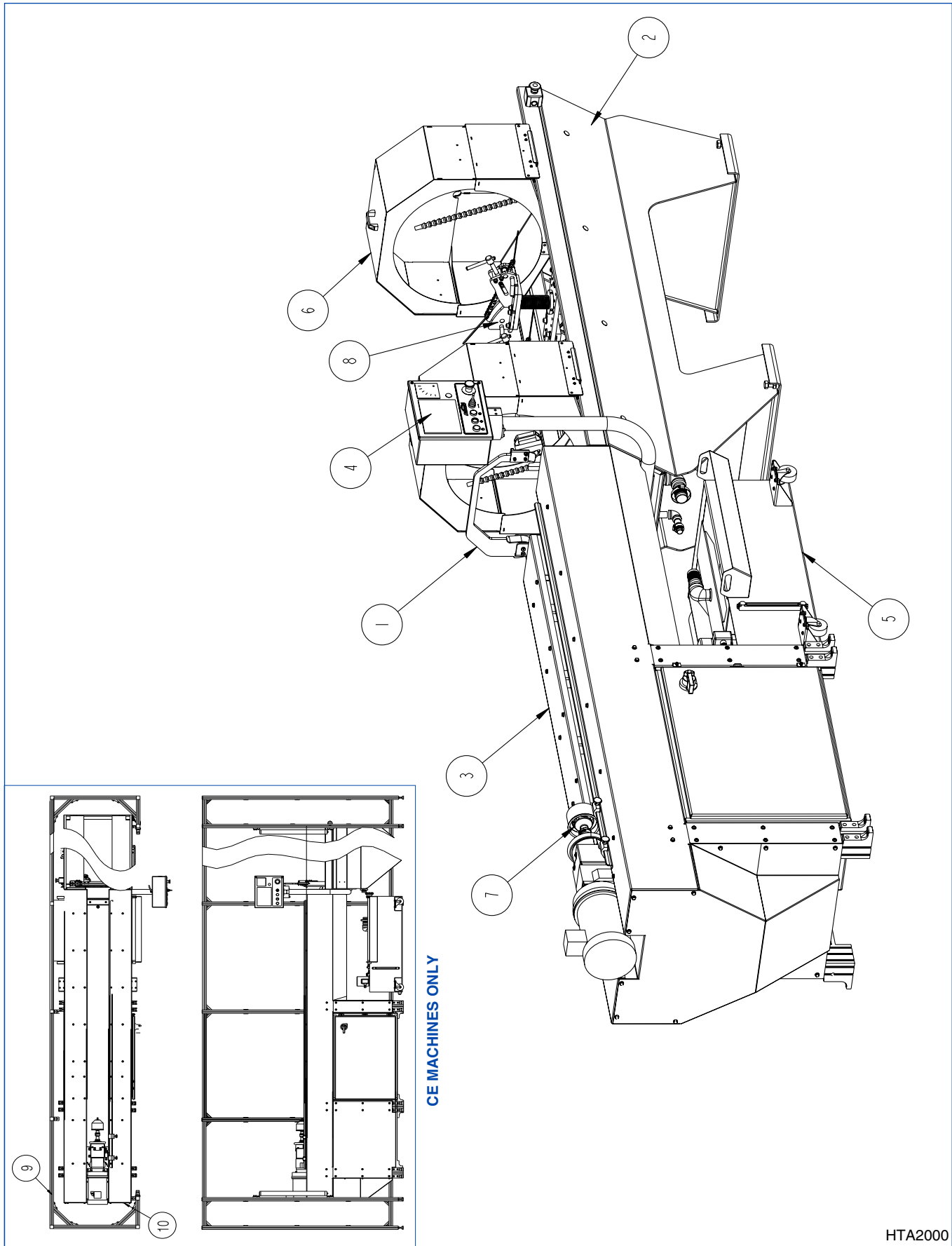
 Indicates CE version ONLY.

¹ DO NOT touch electrical components until main input power has been turned off and *CHARGE* lamps are extinguished. **WARNING:** The capacitors are still charged and can be quite dangerous.

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SECTION I - TUBE HONE



HTA2000

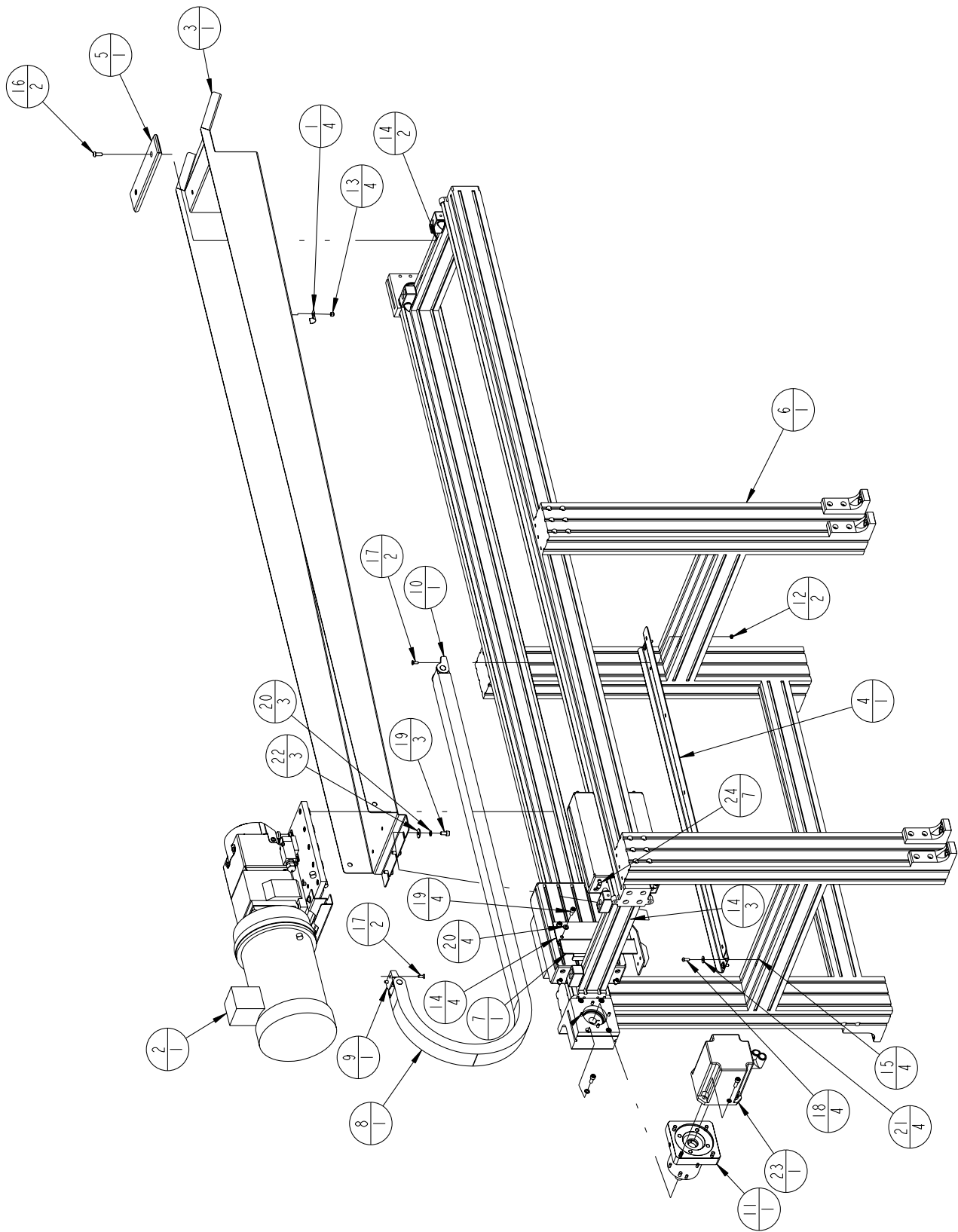
FIGURE 1-A - 2 METER TUBE HONE

PARTS LIST COVERING FIGURE "1-A"

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|------------|---|
| - | HTA2000 | Ref |2 Meter Tube Hone includes |
| 1 | HTA2025 | 1 |Rail Support <i>(see Fig. 2-L)</i> |
| 2 | HTA2200 | 1 |2000mm Base Assembly <i>(see Fig. 1-C)</i> |
| 3 | HTA3200 | 1 |2 Meter Carriage Base Assembly <i>(see Fig. 1-B)</i> |
| 4 | HTA5100 | 1 |HTA Operator Station <i>(see Fig. 2-I)</i> |
| 5 | HTA7000 | 1 |Coolant System Assembly <i>(see Fig. 3-A)</i> |
| 6 | HTA8050 | - |Guard Assembly includes |
| - | HTA8100 | 1 |Splash Guard Assembly <i>(see Fig. 2-G)</i> |
| - | HTA8200 | 1 |Splash Guard Assembly <i>(see Fig. 2-H)</i> |
| 7 | HTA9275 | 1 |Remote Stone Feed Control Hone <i>(see Fig. 2-B)</i> |
| 8 | HTA9500 | 2 |Workpiece Fixture Assembly <i>(see Fig. 2-D)</i> |
| 9 | HTA8400 | 1 |2 Meter Guard Assembly; CE Models ONLY <i>(see Fig. 2-M)</i> |
| 10 | PEM825 | 1 |Snap Bushing; CE Models ONLY |

N/S indicates Not Shown

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HTA3200-1

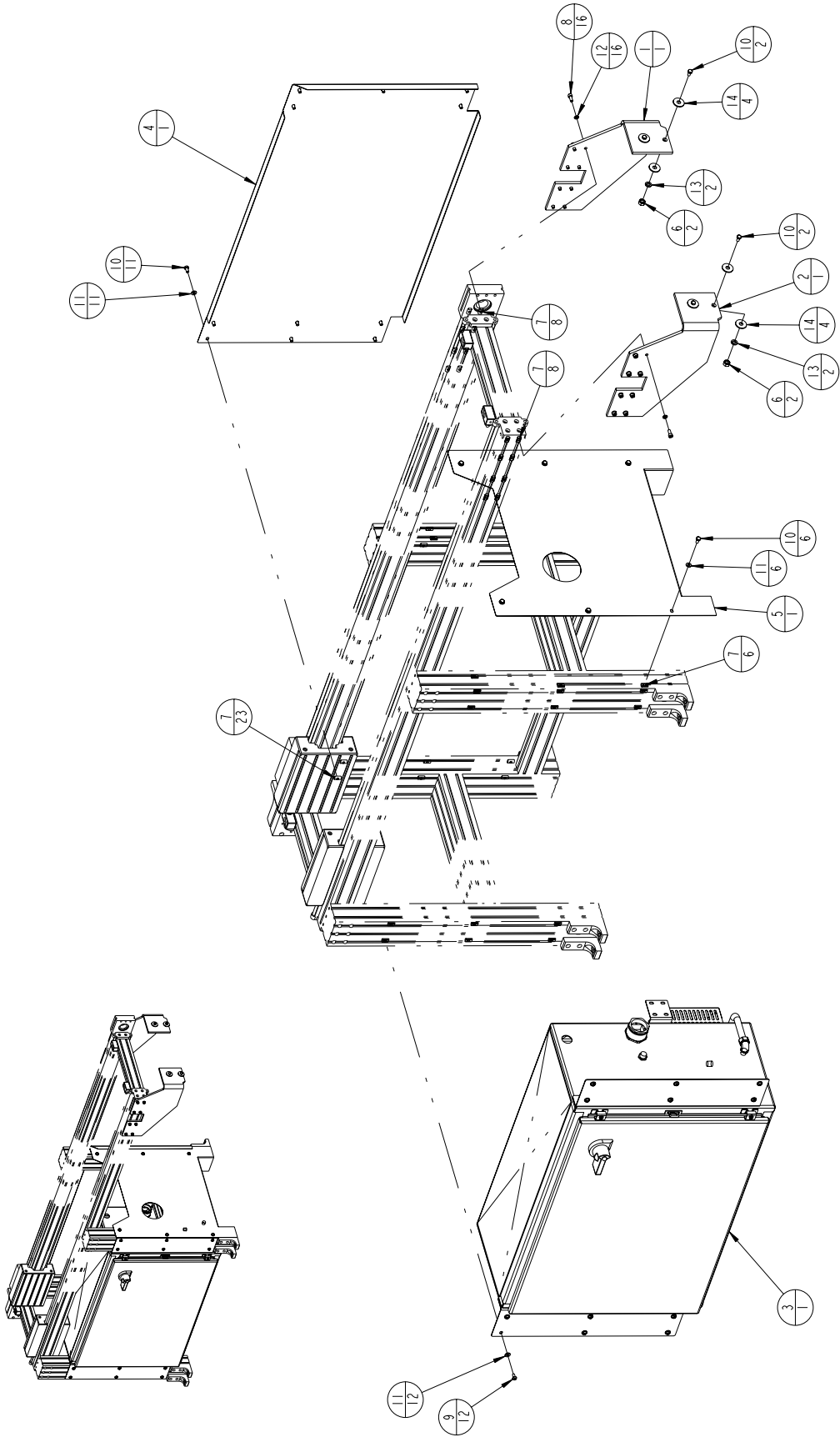
FIGURE 1-B – 2 METER CARRIAGE BASE ASSEMBLY (1 of 3)

PARTS LIST COVERING FIGURE "1-B"

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|------------|---|
| - | HTA3200-1 | Ref |2 Meter Carriage Base Assembly (1 of 3) includes |
| 1 | F4560 | 4 |Rigid Strap |
| 2 | HTA3100 | 1 |Carriage Assembly (<i>see Fig. 2-A</i>) |
| 3 | HTA3160 | 1 |Pan Assembly |
| 4 | HTA3167 | 1 |Right Bracket |
| 5 | HTA3171 | 1 |Tool Rest |
| 6 | HTA3220 | 1 |2 Meter Actuator Assembly |
| N/S | HTA32201 | 1 |Belt (2 Meter) |
| 7 | HTA5125 | 1 |Energy Chain / Cable Weldment |
| 8 | PEM1049 | 1.77 |Cable Carrier |
| 9 | PEM1050 | 1 |Cable Carrier Bracket Set |
| 10 | PEM1050 | 1 |Cable Carrier Bracket Set |
| 11 | PHM630 | 1 |Gearbox |
| 12 | PHNM436 | 2 |Nut, Self Clinching (M6 x 1,0) |
| 13 | PHNM487 | 4 |Locknut (M6 x 1,0) |
| 14 | PHNM505 | 24 |T-Nut |
| 15 | PHNM506 | 4 |T-Nut |
| 16 | PHSM459 | 2 |Screw (M8 x 1,25 x 20mm SHCS) |
| 17 | PHSM512 | 4 |Screw (M6 x 1,0 x 16mm FSHCS) |
| 18 | PHSM541 | 8 |Screw (M6 x 1,0 x 16mm BSHCS) |
| 19 | PHSM959 | 7 |Screw (M8 x 1,25 x 16mm SHCS) |
| 20 | PHWM407 | 7 |Lockwasher (M8) |
| 21 | PHWM530 | 8 |Washer, Fender (M6) |
| 22 | PHWM536 | 3 |Washer, Fender (M8) |
| 23 | PMO1000 | 1 |Servo Motor With Resolver |
| 24 | PPPM511 | 8 |Elbow |

N/S indicates Not Shown

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HTA3200-2

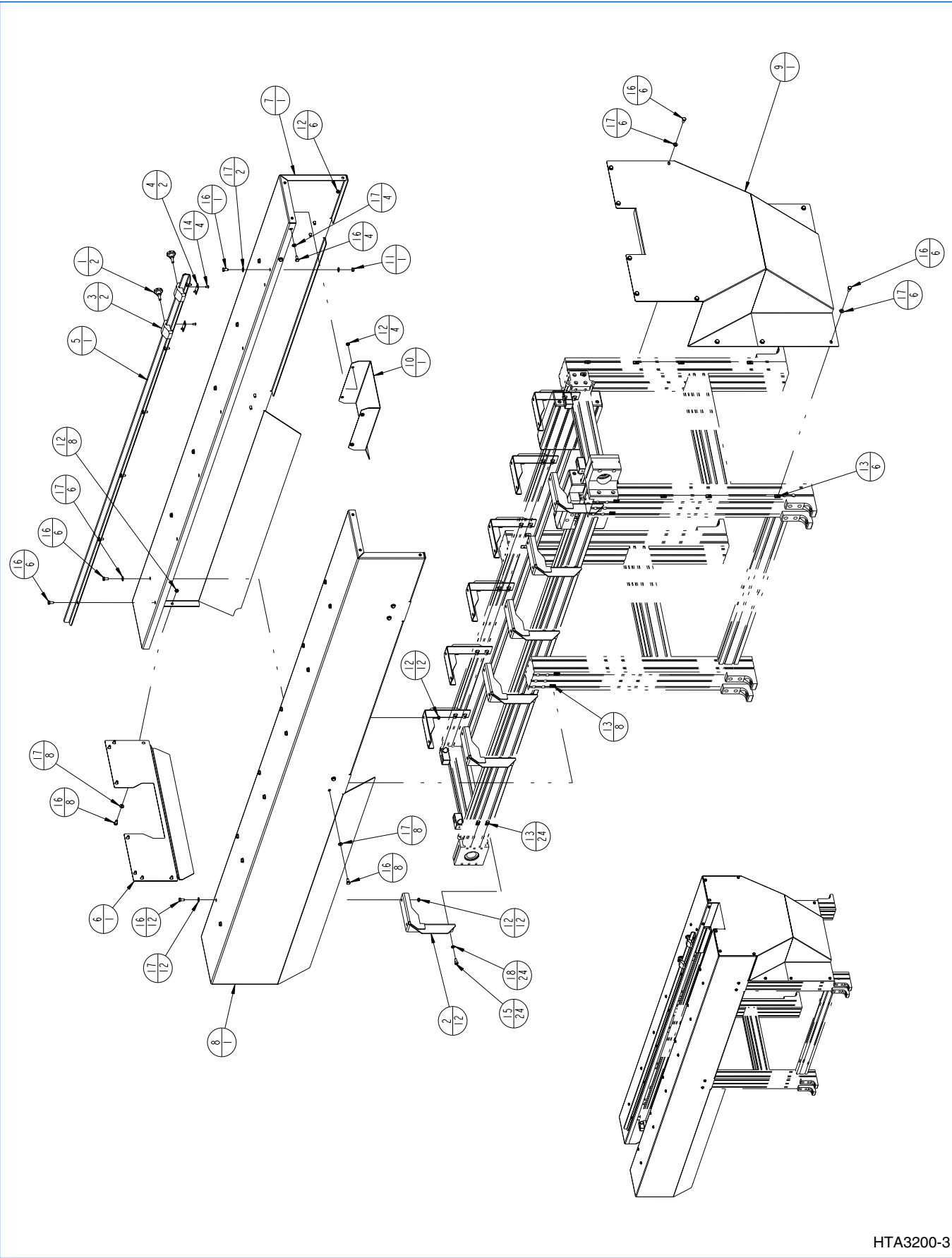
FIGURE 1-B — 2 METER CARRIAGE BASE ASSEMBLY (2 of 3)

PARTS LIST COVERING FIGURE "1-B"

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|------------|---|
| - | HTA3200-2 | Ref |2 Meter Carriage Base Assembly (2 of 3) includes |
| 1 | HTA3166 | 1 |Left Bracket |
| 2 | HTA3167 | 1 |Right Bracket |
| 3 | HTA5010 | 1 |HTA Base Electrical Enclosure Assembly (<i>see Fig. 3-B</i>) |
| 4 | HTA8011 | 1 |Back Base Cover |
| 5 | HTA8012 | 1 |Inside Base Cover |
| 6 | PHNM406 | 4 |Nut, Hex (M12 x 1,75) |
| 7 | PHNM505 | 45 |T-Nut |
| 8 | PHSM965 | 16 |Screw (M8 x 1,25 x 20mm SHCS) |
| 9 | PHSM980 | 12 |Screw (M8 x 1,25 x 16mm BSHCS) |
| 10 | PHSM986 | 21 |Screw |
| 11 | PHW518 | 29 |Flatwasher |
| 12 | PHWM407 | 16 |Lockwasher (M8) |
| 13 | PHWM408 | 4 |Lockwasher (M12) |
| 14 | PHWM542 | 8 |Washer, Fender (M12) |

N/S indicates Not Shown

(Parts continued on next page)



HTA3200-3

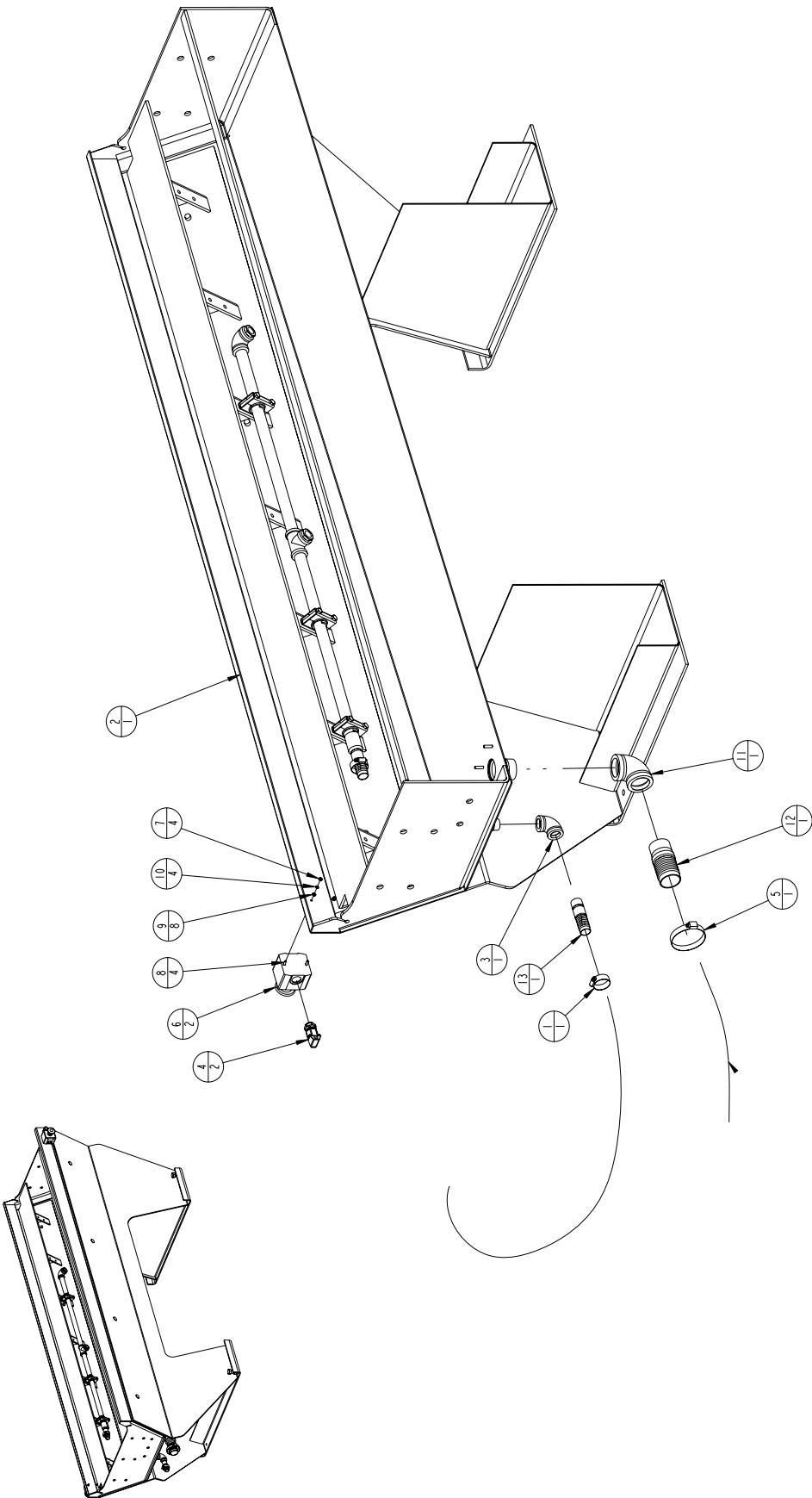
FIGURE 1-B – 2 METER CARRIAGE BASE ASSEMBLY (3 of 3)

PARTS LIST COVERING FIGURE "1-B"

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|------------|---|
| - | HTA3200-3 | Ref |2 Meter Carriage Base Assembly (3 of 3) includes |
| 1 | F45732 | 2 |Knob Palm Grip With Stud |
| 2 | HTA3163 | 12 |Cover Bracket Weldment |
| 3 | HTA5128 | 2 |Trip Dog Body |
| 4 | HTA5129 | 2 |Dog Retainer |
| 5 | HTA5133 | 1 |Trip Dog Strip |
| 6 | HTA8002 | 1 |Interface Guard |
| 7 | HTA8003 | 1 |Guard |
| 8 | HTA8004 | 1 |Guard |
| 9 | HTA8005 | 1 |End Guard Weldment |
| 10 | HTA8006 | 1 |Tray |
| 11 | PHNM401 | 1 |Nut, Hex (M8 x 1,25) |
| 12 | PHNM467 | 42 |Nut, Insert (M8 x 1,8) |
| 13 | PHNM505 | 38 |T-Nut |
| 14 | PHSM431 | 4 |Screw (M5 x 0,8 x 10mm BSHCS) |
| 15 | PHSM959 | 24 |Screw (M8 x 1,25 x 16mm SHCS) |
| 16 | PHSM986 | 57 |Screw |
| 17 | PHW518 | 52 |FlatWasher |
| 18 | PHWM407 | 24 |Lockwasher (M8) |

N/S indicates Not Shown

(Parts continued on next page)



HTA2200

FIGURE 1-C – 2000mm BASE ASSEMBLY

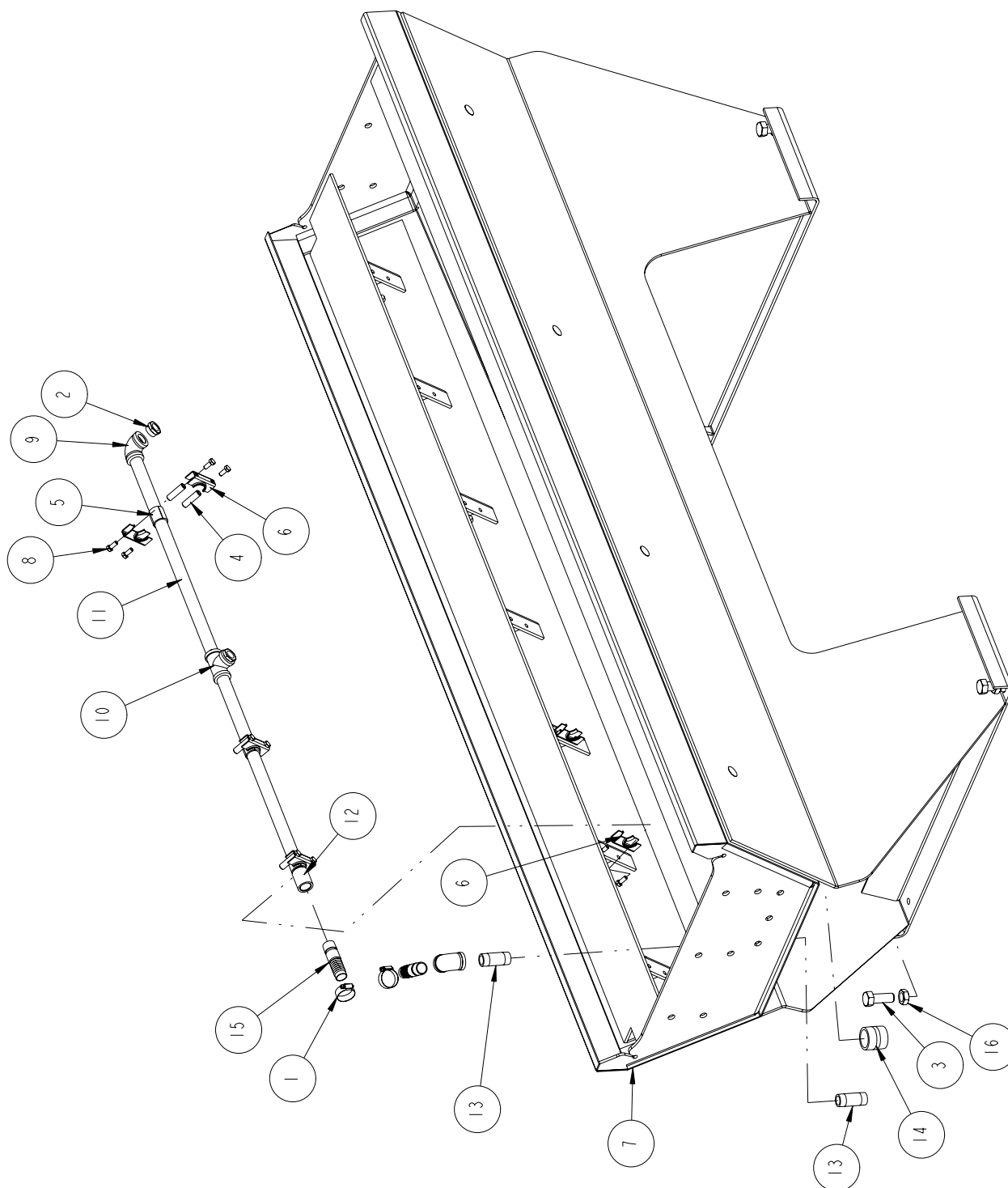
PARTS LIST COVERING FIGURE "1-C"

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|----------|--|
| - | HTA2200 | 1 |2000mm Base Assembly <i>includes</i> |
| 1 | CK1292 | 1 |Hose Clamp |
| 2 | HTA2100 | 1 |Workpiece Base Assembly (<i>see Fig. 1-D</i>) |
| 3 | MAN1079 | 1 |Pipe Elbow (3/4) |
| 4 | PEC386 | 2 |Right Angle Cord Grip |
| 5 | PEM874 | 1 |Hose Clamp |
| 6 | PES798 | 2 |Remote E-Stop Station Pushbutton |
| 7 | PHNM402 | 4 |Nut, Hex (M4 x 0,7) |
| 8 | PHSM573 | 4 |Screw (M4 x 0,7 x 20mm SHCS) |
| 9 | PHWM516 | 4 |Flatwasher (M4) |
| 10 | PHWM528 | 8 |Lockwasher (M4) |
| 11 | PPP318 | 1 |Pipe Elbow (1-1/2) |
| 12 | PPP528 | 1 |Hose Barb |
| 13 | PPP318 | 1 |Hose Barb |
| N/S | MVH7402 | 1 |Hose |
| N/S | 79726 | 2 |Hose |

N/S indicates Not Shown

(Parts continued on next page)

SECTION I
TUBE HONE



HTA2100

FIGURE 1-D – WORKPIECE BASE ASSEMBLY MODULE

PARTS LIST COVERING FIGURE "1-D"

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|----------|---|
| - | HTA2100 | 1 |Workpiece Base Assembly Module <i>includes</i> |
| 1 | CK1292 | 2 |Hose Clamp |
| 2 | CK1328 | 2 |Pipe Hex Bushing |
| 3 | F1934 | 4 |Screw (3/4-10 x 2 HHCS) |
| 4 | F4349GH2 | 6 |Stacking Nut |
| 5 | F43419 | 3 |Bushing, Split |
| 6 | F43425 | 6 |Clamping Unit |
| 7 | HTA2005 | 1 |2000mm Workspace Base |
| 8 | KN567 | 12 |Screw (5/16-18 x 3/4 HHCS) |
| 9 | MAN1079 | 2 |Pipe Elbow (3/4") |
| 10 | PPP201 | 1 |Pipe Tee (3/4") |
| 11 | PPP394 | 2 |Pipe Nipple (3/4") |
| 12 | PPP556 | 1 |Pipe Coupling (3/4") |
| 13 | PPP649 | 2 |Pipe Nipple (3/4") |
| 14 | PPP655 | 1 |Close Nipple (1-1/2") |
| 15 | PPP785 | 2 |Hose Barb |
| 16 | TCS24222 | 4 |Nut, Hex Jam (3/4-10) |

N/S indicates Not Shown

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SECTION I
TUBE HONE

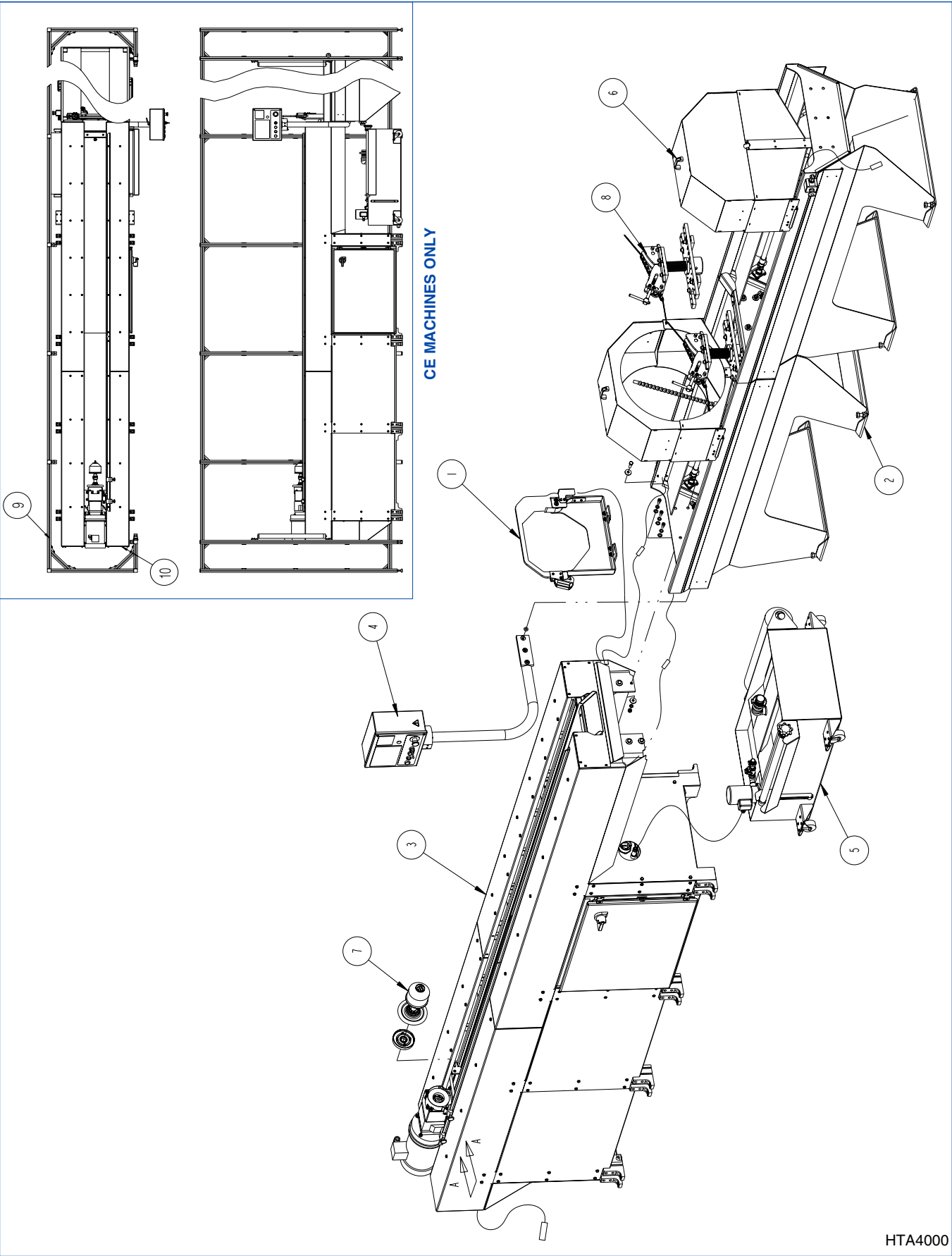


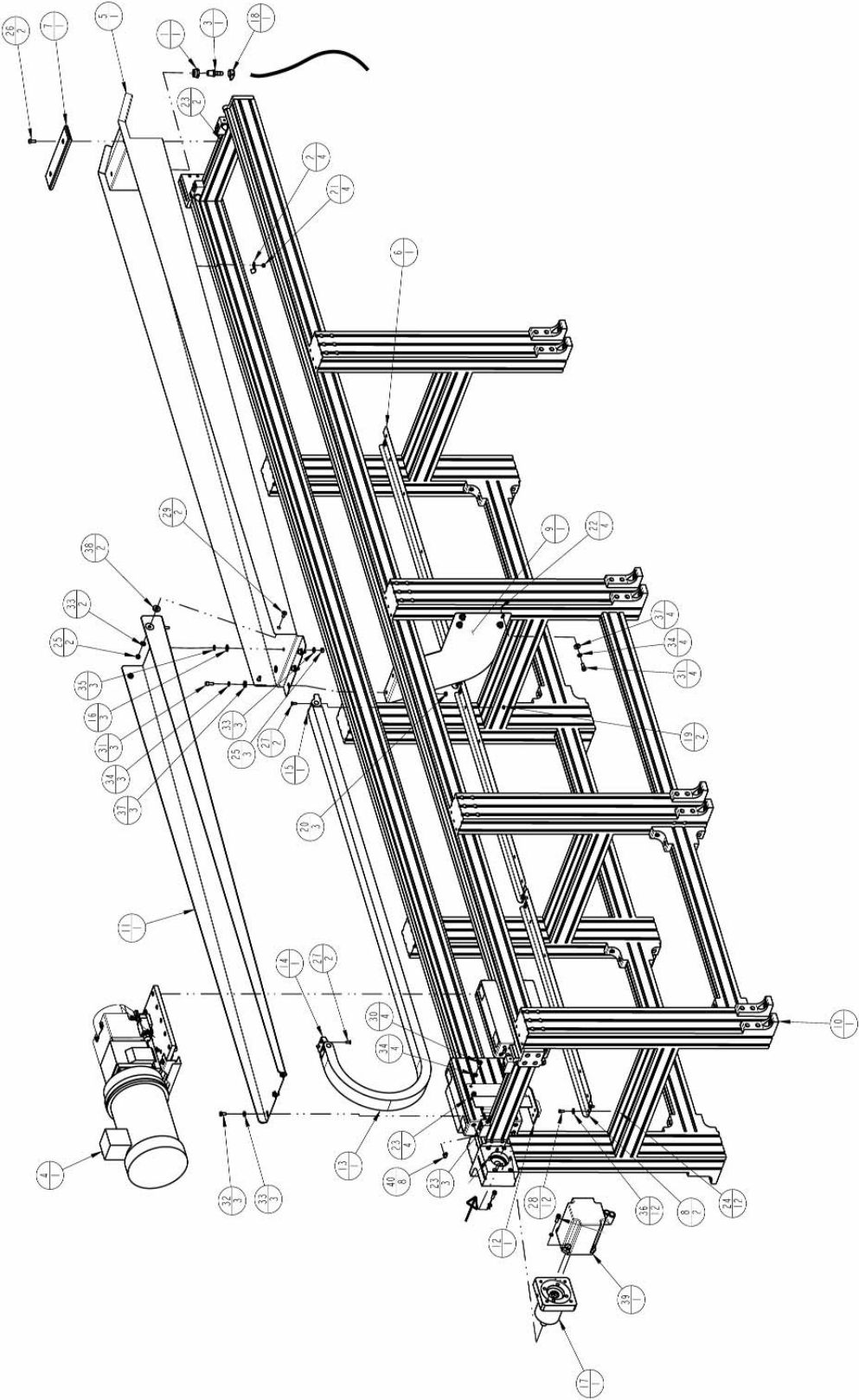
FIGURE 1-D – 4 METER TUBE HONE

PARTS LIST COVERING FIGURE “1-E”

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|------------|---|
| - | HTA4000 | Ref |4 Meter Tube Hone includes |
| 1 | HTA2025 | 1 |Rail Support <i>(see Fig. 2-L)</i> |
| 2 | HTA2400 | 1 |4000mm Base Assembly <i>(see Fig. 1-G)</i> |
| 3 | HTA3400 | 1 |4 Meter Carriage Base Assembly <i>(see Fig. 1-F)</i> |
| 4 | HTA5100 | 1 |HTA Operator Station <i>(see Fig. 2-I)</i> |
| 5 | HTA7000 | 1 |Coolant System Assembly <i>(see Fig. 3-A)</i> |
| 6 | HTA8050 | - |Guard Assembly includes |
| - | HTA8100 | 1 |Splash Guard Assembly <i>(see Fig. 2-G)</i> |
| - | HTA8200 | 1 |Splash Guard Assembly <i>(see Fig. 2-H)</i> |
| 7 | HTA9275 | 1 |Remote Stone Feed Control Hone <i>(see Fig. 2-B)</i> |
| 8 | HTA9500 | 2 |Workpiece Fixture Assembly <i>(see Fig. 2-D)</i> |
| 9 | HTA8500 | 1 |4 Meter Guard Assembly; CE Models ONLY <i>(see Fig. 2-O)</i> |
| 10 | PEM825 | 1 |Snap Bushing; CE Models ONLY |

N/S indicates Not Shown

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HTA3400op10

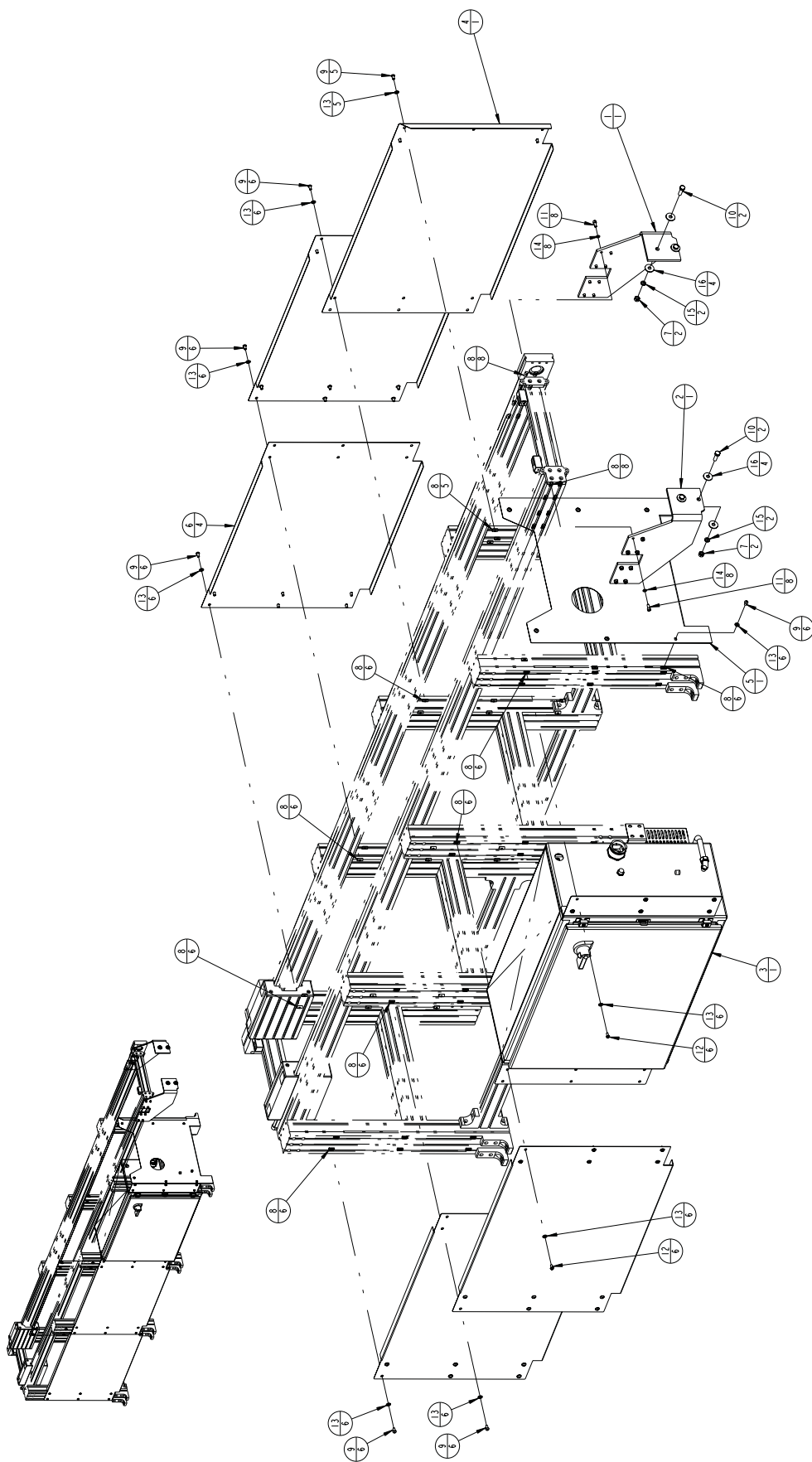
FIGURE 1-E – 4 METER CARRIAGE BASE ASSEMBLY (1 of 3)

PARTS LIST COVERING FIGURE "1-E"

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|------|---|
| - | HTA3400op10 | Ref |4 Meter Carriage Base Assembly (1 of 3) <i>includes</i> |
| 1 | CK1328 | 1 |Pipe Hex Bushing |
| 2 | F4560 | 4 |Rigid Strap |
| 4 | HTA3100 | 1 |Carriage Assembly (<i>see Fig. 2-A</i>) |
| 5 | HTA3160 | 1 |Pan Assembly |
| 6 | HTA3162 | 1 |Energy Cain Rack |
| 7 | HTA3171 | 1 |Tool Rest |
| 8 | HTA3173 | 2 |Energy Cain Track |
| 9 | HTA3176 | 1 |Drip Tray Support |
| 10 | HTA3420 | 1 |4 Meter Actuator Assembly |
| N/S | HTA34201 | 1 |Belt (4 Meter) |
| 11 | HTA3460 | 1 |Drain Pan Extension Weldment |
| 12 | HTA5125 | 1 |Energy Chain / Cable Weldment |
| 13 | PEM1049 | 1 |Cable Carrier |
| 14 | PEM10501 | 1 |Cable Carrier Bracket |
| 15 | PEM10502 | 1 |Cable Carrier Bracket |
| 16 | PG968 | 3 |O-Ring |
| 17 | PHM630 | 1 |Gearbox |
| 18 | PHM872 | 1 |Hose Clamp |
| 19 | PHNM436 | 2 |Nut (M6 x 1,0) |
| 20 | PHNM467 | 3 |Nut, Insert (M8 x 1,8) |
| 21 | PHNM487 | 4 |Locknut (M6 x 1,0) |
| 22 | PHNM504 | 4 |T-Nut |
| 23 | PHNM505 | 9 |T-Nut |
| 24 | PHNM506 | 12 |T-Nut |
| 25 | PHNM507 | 5 |Nut (M8 x 1,25) |
| 26 | PHSM459 | 2 |Screw (M8 x 1,25 x 20mm SHCS) |
| 27 | PHSM512 | 4 |Screw (M6 x 1,0 x 16mm FSHCS) |
| 28 | PHSM541 | 12 |Screw (M6 x 1,0 x 16mm BSHCS) |
| 29 | PHSM658 | 2 |Screw (M8 x 1,25 x 18mm FSHCS) |
| 30 | PHSM959 | 4 |Screw (M8 x 1,25 x 16mm SHCS) |
| 31 | PHSM965 | 7 |Screw (M8 x 1,25 x 20mm SHCS) |
| 32 | PHSM986 | 3 |Screw |
| 33 | PHW518 | 8 |Flatwasher (5/16 x 11/16 x 5/8) |
| 34 | PHWM407 | 11 |Lockwasher (M8) |
| 35 | PHWM501 | 3 |Flatwasher (M8) |
| 36 | PHWM530 | 12 |Washer, Fender (M6) |
| 37 | PHWM532 | 7 |Flatwasher (M8) |
| 38 | PHWM567 | 2 |Flatwasher (M10) |
| 39 | PMO1000 | 1 |Servo Motor With Resolver |
| 40 | PPPM511 | 8 |Elbow |

N/S indicates Not Shown

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HTA3400op20

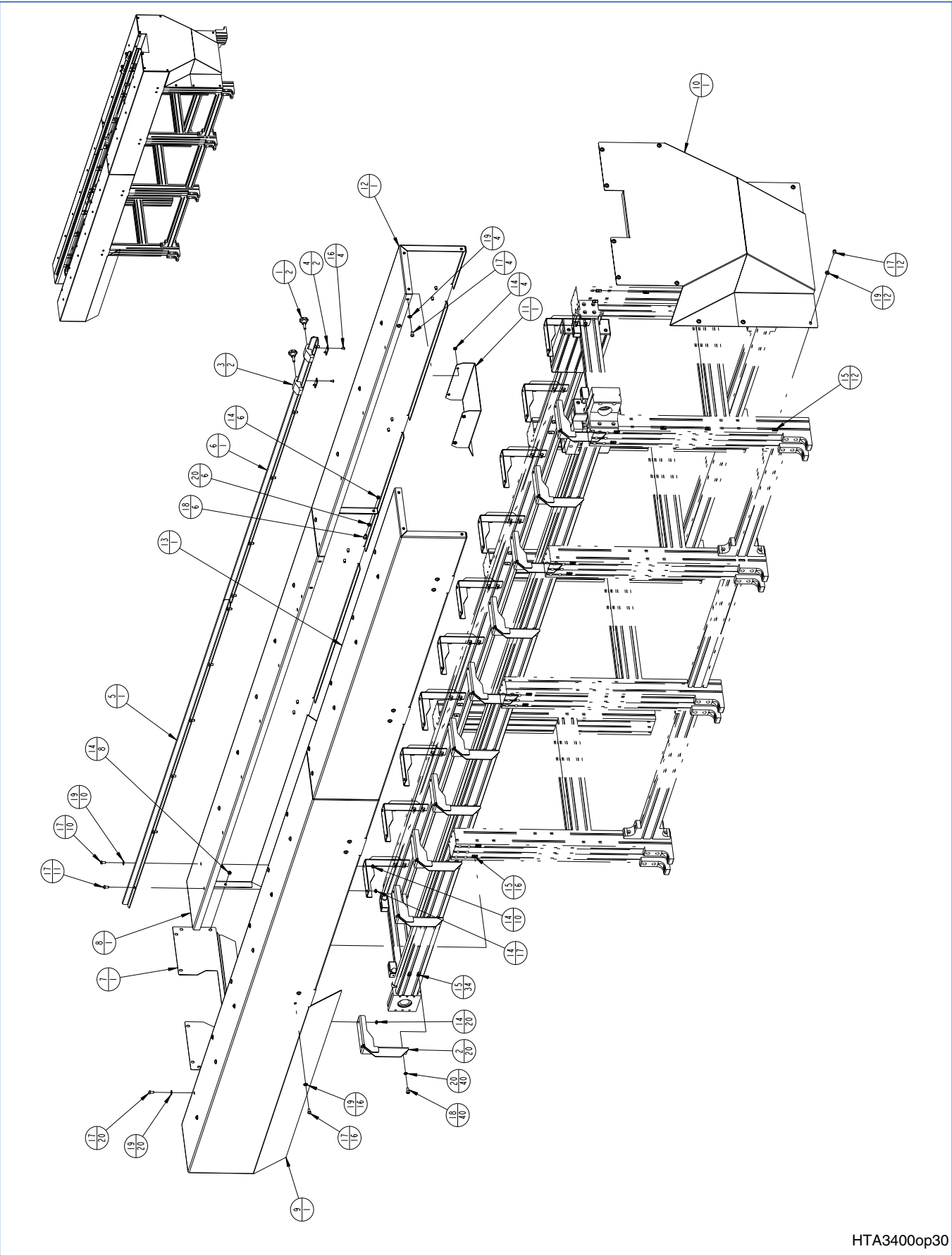
FIGURE 1-E – 4 METER CARRIAGE BASE ASSEMBLY

PARTS LIST COVERING FIGURE "1-E"

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|------|---|
| - | HTA3400op20 | Ref |4 Meter Carriage Base Assembly (2 of 3) <i>includes</i> |
| 1 | HTA3166 | 1 |Left Bracket |
| 2 | HTA3167 | 1 |Right Bracket |
| 3 | HTA5010 | 1 |HTA Base Electrical Enclosure Assembly (<i>see Fig. 3-B</i>) |
| 4 | HTA8011 | 1 |Back Base Cover |
| 5 | HTA8012 | 1 |Inside Base Cover |
| 6 | HTA8013 | 1 |Base Cover |
| 7 | PHNM406 | 4 |Nut, Hex (M12 x 1,75) |
| 8 | PHNM505 | 69 |T-Nut |
| 9 | PHSM716 | 41 |Screw (M8 x 1,25 x 16mm SHCS) |
| 10 | PHSM795 | 4 |Screw |
| 11 | PHSM965 | 16 |Screw (M8 x 1,25 x 20mm SHCS) |
| 12 | PHSM980 | 12 |Screw (M8 x 1,25 x 16mm BSHCS) |
| 13 | PHW518 | 53 |Flatwasher (5/16 x 11/16 x 5/8) |
| 14 | PHWM407 | 16 |Lockwasher (M8) |
| 15 | PHWM408 | 4 |Lockwasher (M12) |
| 16 | PHWM542 | 8 |Washer, Fender (M12) |

N/S indicates Not Shown

(Parts continued on next page)



HTA3400op30

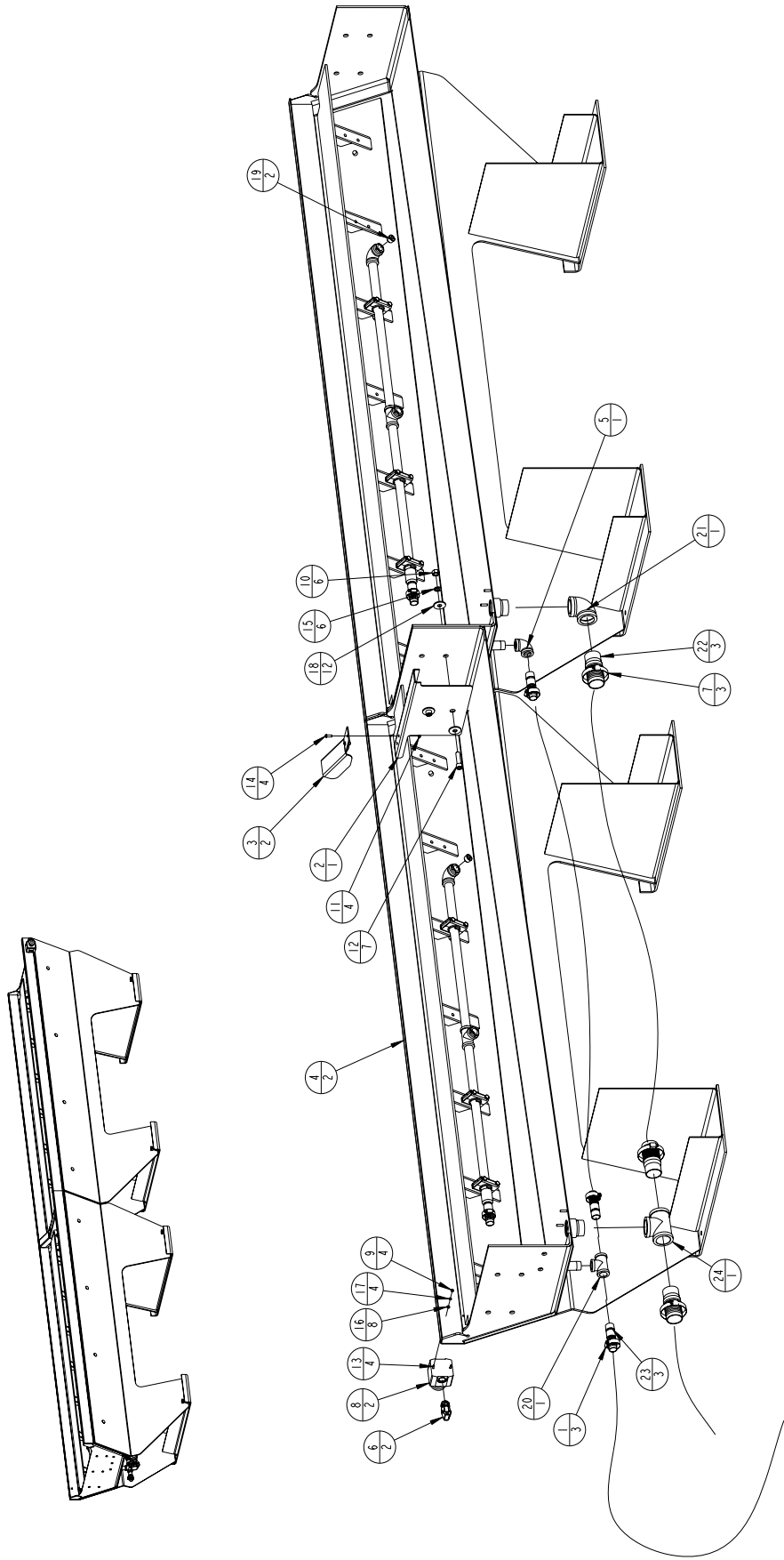
FIGURE 1-E — 4 METER CARRIAGE BASE ASSEMBLY (3 of 3)

PARTS LIST COVERING FIGURE "1-E"

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|------------|---|
| - | HTA3400op30 | Ref |4 Meter Carriage Base Assembly (3 of 3) includes |
| 1 | F45732 | 2 |Knob Palm Grip With Stud |
| 2 | HTA3163 | 20 |Cover Bracket Weldment |
| 3 | HTA5128 | 2 |Trip Dog Body |
| 4 | HTA5129 | 2 |Dog Retainer |
| 5 | HTA5133 | 1 |Trip Dog Strip |
| 6 | HTA5134 | 1 |Trip Dog Strip |
| 7 | HTA8002 | 1 |Interface Guard |
| 8 | HTA8003 | 1 |Guard |
| 9 | HTA8004 | 1 |Guard |
| 10 | HTA8005 | 1 |End Guard Weldmwnr |
| 11 | HTA8006 | 1 |Tray |
| 12 | HTA8023 | 1 |Right Back Guard |
| 13 | HTA8024 | 1 |Left Back Guard |
| 14 | PHNM467 | 65 |Nut, Insert (M8 x 1,8) |
| 15 | PHNM505 | 62 |T-Nut |
| 16 | PHSM431 | 4 |Screw (M5 x 0,8 x 10mm BSHCS) |
| 17 | PHSM986 | 73 |Screw (M8 x 1,25 x 16mm HHCS) |
| 18 | PHSM959 | 46 |Screw (M8 x 1,25 x 16mm SHCS) |
| 19 | PHW518 | 62 |Flatwasher (5/16 x 11/16 x 5/8) |
| 20 | PHWM407 | 46 |Lockwasher (M8) |

N/S indicates Not Shown

(Parts continued on next page)



HTA2400

FIGURE 1-F – 4000mm BASE ASSEMBLY

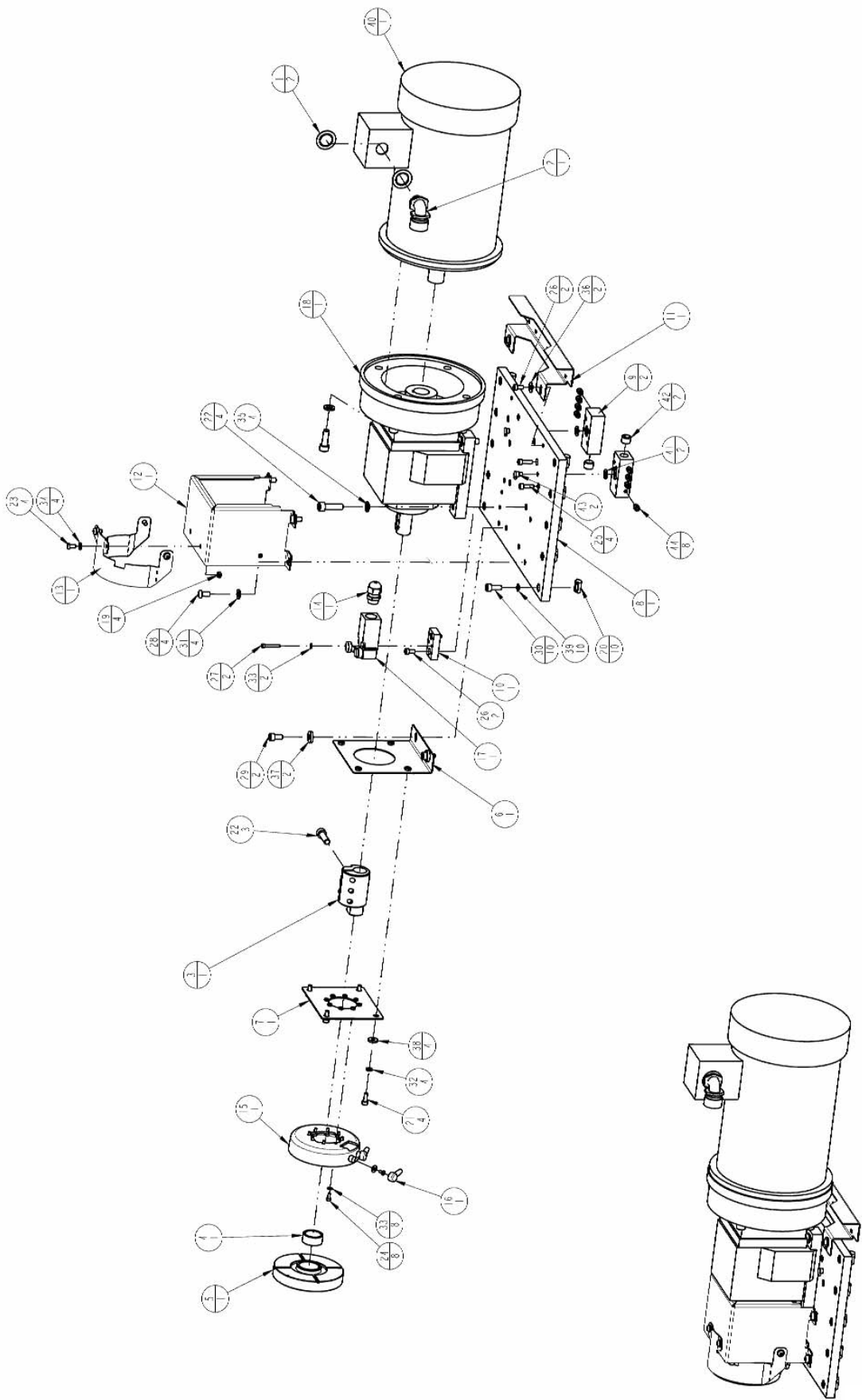
PARTS LIST COVERING FIGURE "1-F"

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|----------|---|
| - | HTA2400 | 1 |4000mm Base Assembly <i>includes</i> |
| 1 | CK1292 | 3 |Hose Clamp |
| 2 | HTA2014 | 1 |Oil Splash Cover |
| 3 | HTA2016 | 2 |Oil Splash Corner Cover |
| 4 | HTA2100 | 2 |Work Piece Base Assembly (<i>see Fig. 1-D</i>) |
| 5 | MAN1079 | 1 |Pipe Elbow (3/4) |
| 6 | PEC386 | 2 |Right Angle Cord Grip |
| 7 | PEM874 | 3 |Hose Clamp |
| 8 | PES798 | 2 |Remote E-Stop Station Pushbutton |
| 9 | PHNM402 | 4 |Nut, Hex (M4 x 0,7) |
| 10 | PHNM406 | 6 |Nut, Hex (M12 x 1,75) |
| 11 | PHNM436 | 4 |Nut (M6 x 1,0) |
| 12 | PHSM453 | 7 |Screw (M12 x 1,75 x 45mm SHCS) |
| 13 | PHSM573 | 4 |Screw (M4 x 0,7 x 20mm SHCS) |
| 14 | PHSM971 | 4 |Screw |
| 15 | PHWM408 | 6 |Lockwasher (M412) |
| 16 | PHWM516 | 8 |Flatwasher (M4) |
| 17 | PHWM528 | 4 |Lockwasher (M4) |
| 18 | PHWM542 | 12 |Washer, Fender (M12) |
| 19 | PPP130 | 2 |Pipe Plug |
| 20 | PPP201 | 1 |Pipe Tee (3/4") |
| 21 | PPP318 | 1 |Pipe Elbow (1-1/2) |
| 22 | PPP528 | 3 |Hose Barb |
| 23 | PPP785 | 3 |Hose Barb |
| 24 | PPP786 | 1 |Pipe Tee |
| N/S | MVH7402 | 1 |Hose |
| N/S | 79726 | 4 |Hose |

N/S indicates Not Shown

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SECTION II - COMPONENTS



HTA3100

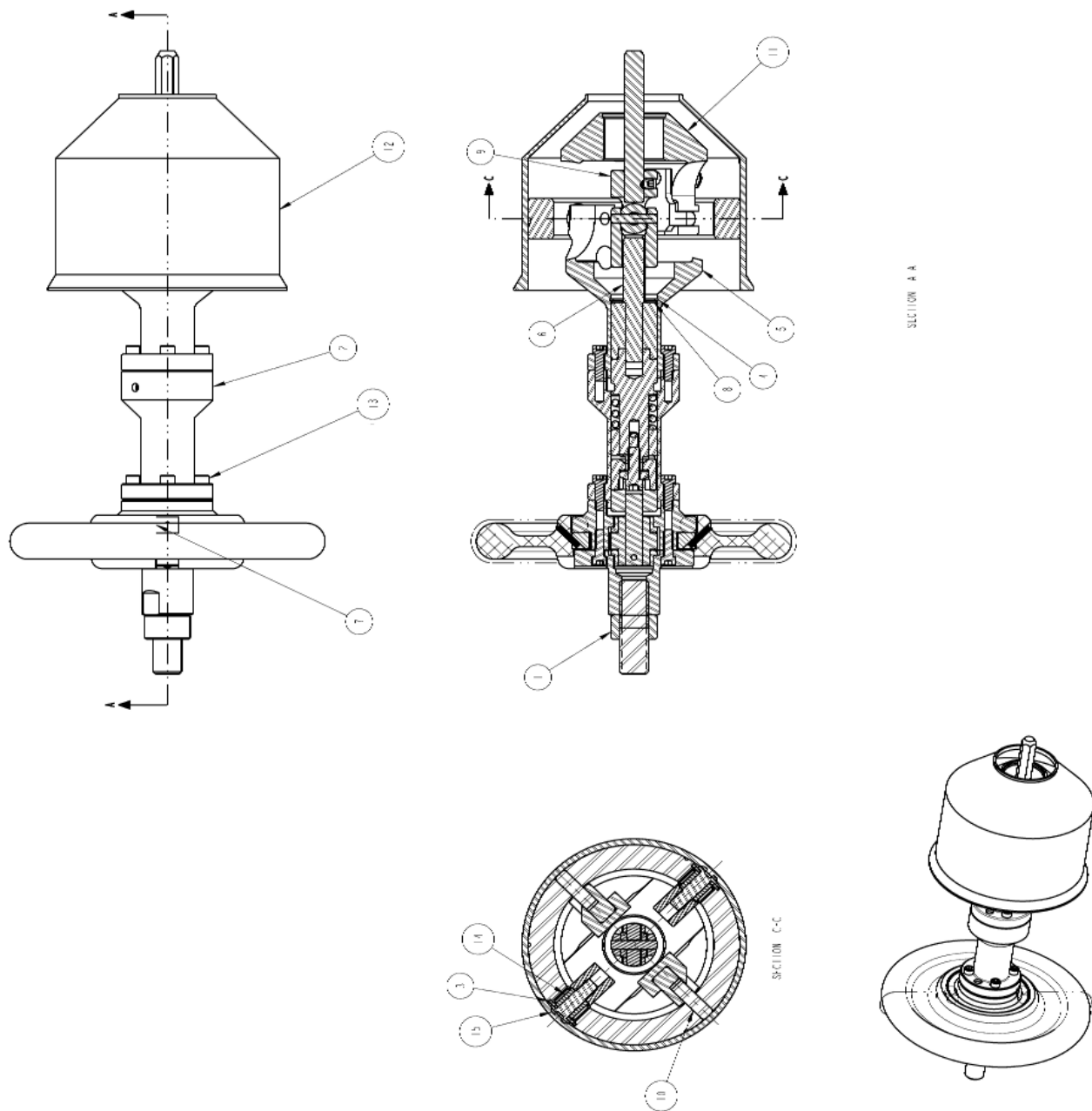
FIGURE 2-A – CARRIAGE ASSEMBLY

PARTS LIST COVERING FIGURE "2-A"

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|----------|--|
| - | HTA3100 | 1 |Carriage Assembly <i>includes</i> |
| 1 | F3596 | 2 |Washer Reducing |
| 2 | F4383 | 1 |Grip, Cord 90° (Purple) |
| 3 | HTA3104 | 1 |Coupler |
| 4 | HTA3113 | 1 |Bearing |
| 5 | HTA3114 | 1 |Armature Plate |
| 6 | HTA3115 | 1 |Brake Bracket Assembly |
| 7 | HTA3120 | 1 |Brake Plate Assembly |
| 8 | HTA3127 | 1 |Carriage Base |
| 9 | HTA3181 | 2 |Manifold |
| 10 | HTA5121 | 1 |Switch Block |
| 11 | HTA5126 | 1 |Cable Tray |
| 12 | HTA8001 | 1 |Coupling Cover |
| 13 | HTA8033 | 1 |Brake Shield |
| 14 | PEC380 | 1 |Strain Relief Connector |
| 15 | PEM1204 | 1 |Brake Magnet Coil, 24v |
| 16 | PEM1206 | 1 |Brake Coil Terminal Insulator |
| 17 | PES808 | 1 |Roller Limit Switch |
| 18 | PHM629A | 1 |Gear Reducer |
| 19 | PHNM436 | 4 |Nut (M6 X 1,0) |
| 20 | PHNM504 | 10 |T-Nut |
| 21 | PHSM405 | 4 |Screw (M6 X 1,0 X 16mm SHCS) |
| 22 | PHSM449 | 7 |Screw (M10 X 1,5 X 35mm SHCS) |
| 23 | PHSM510 | 4 |Screw (M6 X 1,0 X 12mm BSHCS) |
| 24 | PHSM520 | 8 |Screw (M4 X 0,7 X 10mm SHCS) |
| 25 | PHSM534 | 4 |Screw (M6 X 1,0 X 20mm SHCS) |
| 26 | PHSM535 | 4 |Screw (M6 X 1,0 X 12mm SHCS) |
| 27 | PHSM574 | 2 |Screw (M4 X 0,7 X 30mm SHCS) |
| 28 | PHSM716 | 4 |Screw (M8 X 1,25 X 16mm SHCS) |
| 29 | PHSM959 | 2 |Screw (M8 X 1,25 X 16mm SHCS) |
| 30 | PHSM965 | 10 |Screw (M8 X 1,25 X 20mm SHCS) |
| 31 | PHWM501 | 4 |Flatwasher (M8) |
| 32 | PHWM509 | 4 |Lockwasher (M6) |
| 33 | PHWM516 | 10 |Flatwasher (M4) |
| 34 | PHWM518 | 2 |Flatwasher (M6) |
| 35 | PHWM521 | 4 |Lockwasher (M10) |
| 36 | PHWM530 | 2 |Washer (M6) |
| 37 | PHWM532 | 2 |Flatwasher (M8) |
| 38 | PHWM534 | 4 |Flatwasher (M6) |
| 39 | PHWM571 | 10 |Locking Washer (M8) |
| 40 | PMO1001 | 1 |Motor, 3hP AC |
| 41 | POR109 | 2 |O-Ring |
| 42 | PPP311 | 2 |Pipe Plug |
| 43 | PPPM502 | 2 |Oil Cover |
| 44 | PPPM590 | 2 |Straight Male Connector |
| N/S | PSP272 | 1 |Spring |

N/S indicates Not Shown

(Parts continued on next page)



HTA9275

FIGURE 2-B – REMOTE STONE FEED CONTROL HONE

PARTS LIST COVERING FIGURE "2-B"

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|-------------|---|
| - | HTA9275 | Ref. |Remote Stone Feed Control Hone <i>includes</i> |
| 1 | AN640 | 1 |Extension Coupler |
| 2 | ANR230 | 1 |Feed Clutch |
| 3 | CK1828 | 2 |Flatwasher |
| 4 | F2040 | 1 |Ring Snap |
| 5 | HTA3108 | 1 |Yoke |
| 6 | HTA3130 | 1 |Feed Shaft Assembly |
| 7 | HTA9110 | 1 |Upper Feed Assembly (<i>see Fig. 2-C</i>) |
| 8 | JNR132 | 1 |Flatwasher |
| 9 | MPS175 | 1 |U Joint Assembly |
| 10 | MPS185 | 1 |Universal Ring Assembly |
| 11 | MPS2230 | 1 |Input Yoke |
| 12 | MPS2235 | 1 |Universal Cover |
| 13 | MSN177 | 8 |Screw (#10-32 X 5/8 SHCS) |
| 14 | PBR24 | 2 |Inner Race (Bushing) |
| 15 | PHS522 | 2 |Screw (5/16-24 X 1 BSHCS) |

N/S indicates Not Shown

SECTION II

COMPONENTS

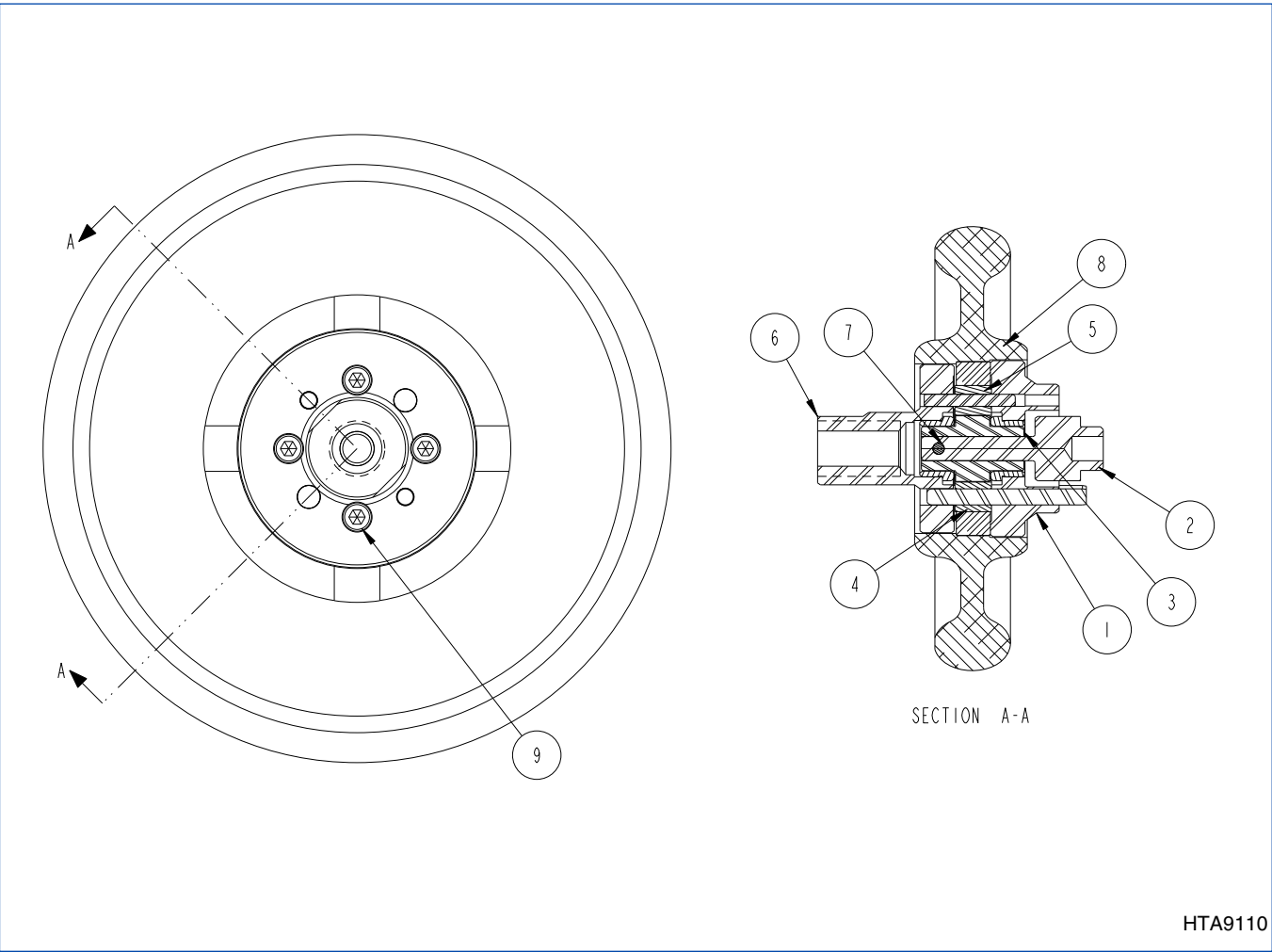
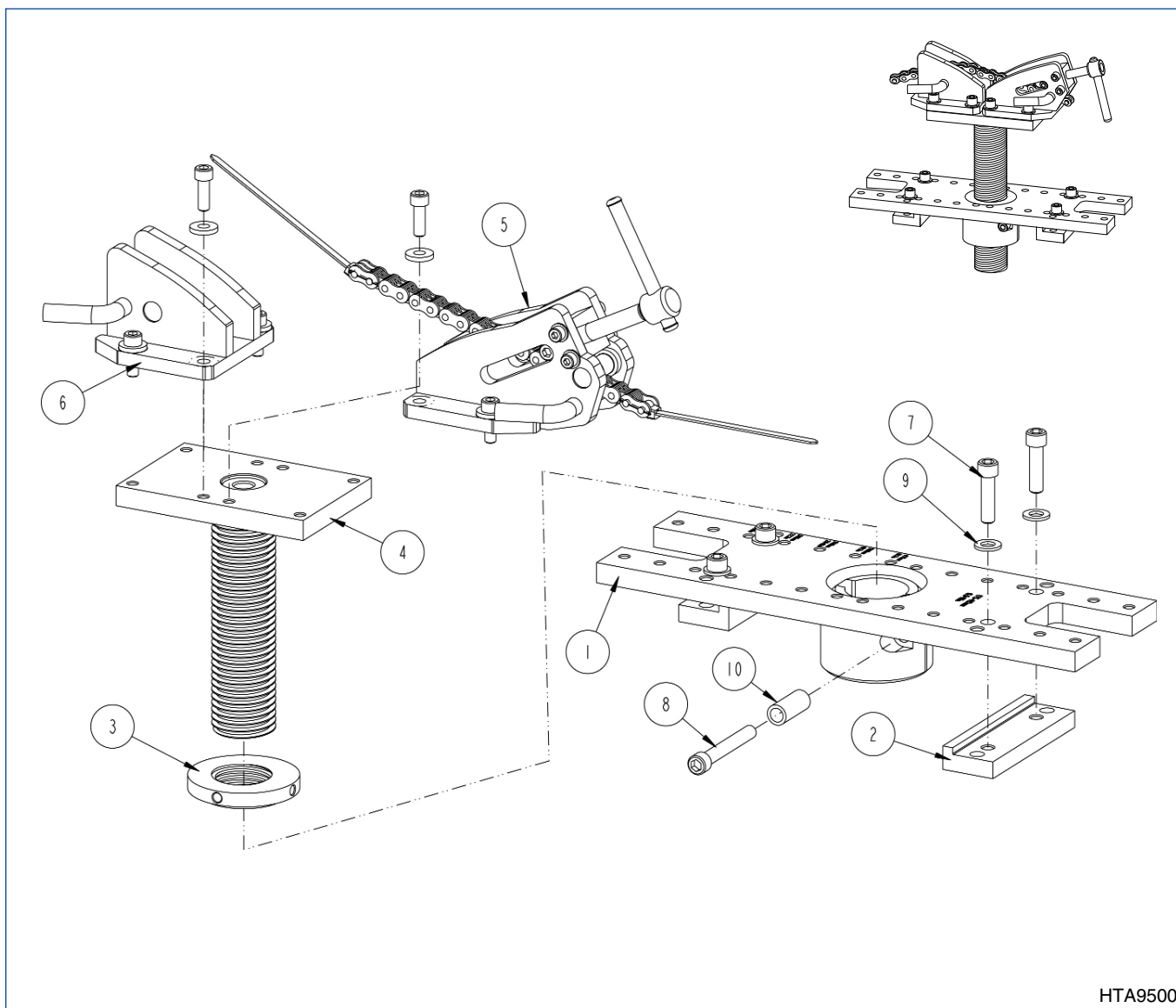


FIGURE 2-C – UPPER FEED ASSEMBLY

PARTS LIST COVERING FIGURE “2-C”

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|------|---|
| - | HTA9110 | Ref. |Upper Feed Assembly <i>includes</i> |
| 1 | ANR115 | 1 |Carriage Assembly |
| 2 | ANR125 | 1 |Feed Shaft Assembly |
| 3 | ANR135 | 1 |Sun Gear |
| 4 | ANR141 | 2 |Gear |
| 5 | ANR144 | 2 |Gear |
| 6 | ANR155 | 1 |Drive Head Assembly |
| 7 | G419SF | 1 |Pin |
| 8 | HTA9145 | 1 |Hand Wheel Assembly |
| 9 | MSN177 | 4 |Screw (#10-32 x 5/8 SHCS) |

N/S indicates Not Shown



HTA9500

FIGURE 2-D – WORKPIECE FIXTURE ASSEMBLY

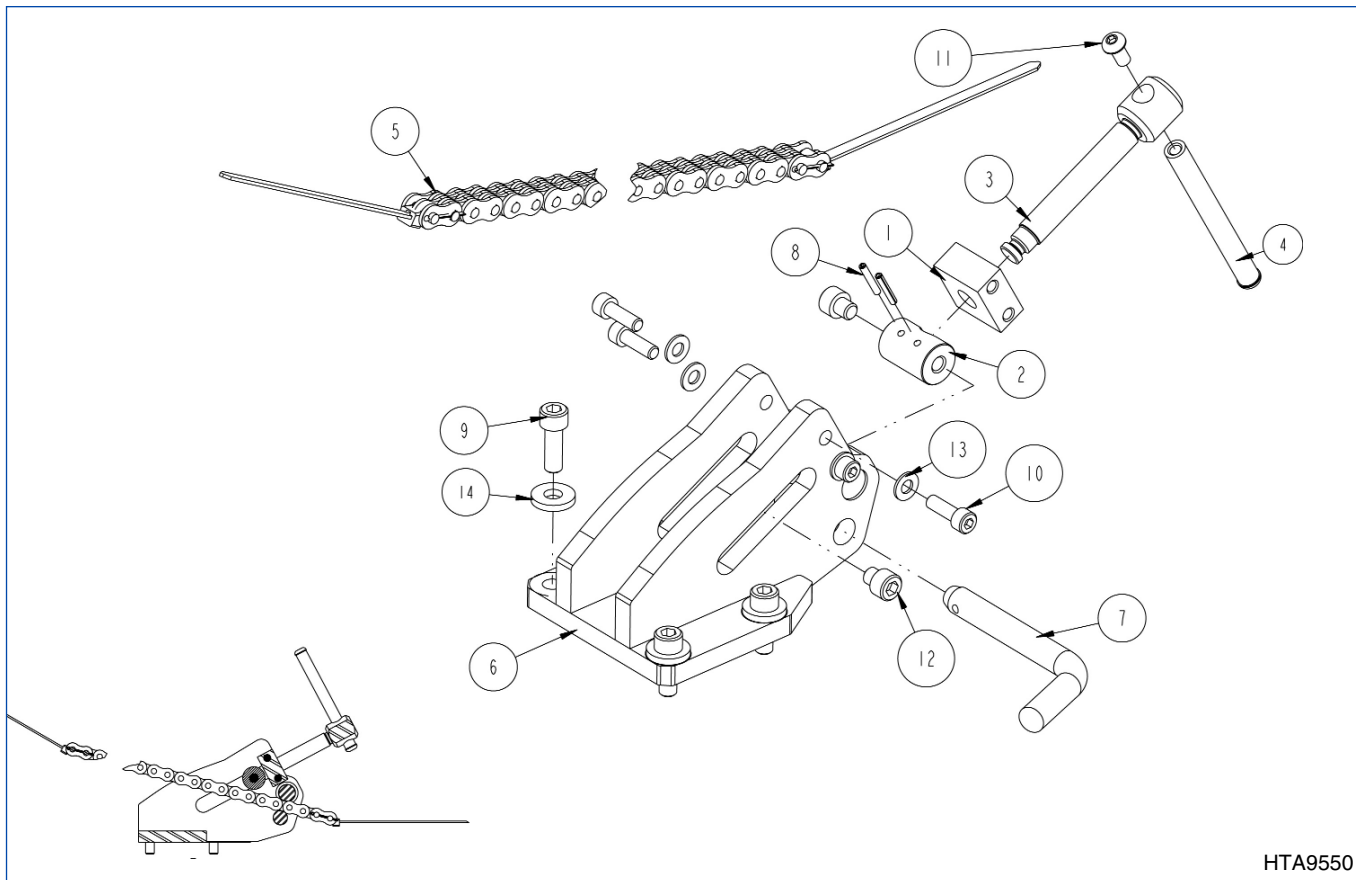
PARTS LIST COVERING FIGURE “2-D”

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|-------------|---|
| - | HTA9500 | Ref. |Fixture Assembly includes |
| 1 | HTA9505 | 1 |Fixture Support |
| 2 | HTA9508 | 2 |Fixture Clamp |
| 3 | HTA9509 | 1 |Locking Nut |
| 4 | HTA9510 | 1 |Screw Assembly |
| 5 | HTA9550 | 1 |V-Wedge Chain Clamp Assembly (see Fig. 2-E) |
| 6 | HTA9570 | 1 |V-Wedge Assembly (see Fig. 2-F) |
| 7 | PHSM453 | 4 |Screw, Socket Head Cap, M12 X 1.75 X 45mm, Plain |
| 8 | PHSM455 | 1 |Screw, Socket Head Cap, M12 X 1.75 X 90mm, Plain |
| 9 | PHWM549 | 4 |Flatwasher, M12, Plain, Bossard #Bn342 |
| 10 | STH2912 | 1 |Fixture Bolt Spacer |
| N/S | PHP206 | 2 |Hitch Pin |

N/S indicates Not Shown

SECTION II

COMPONENTS



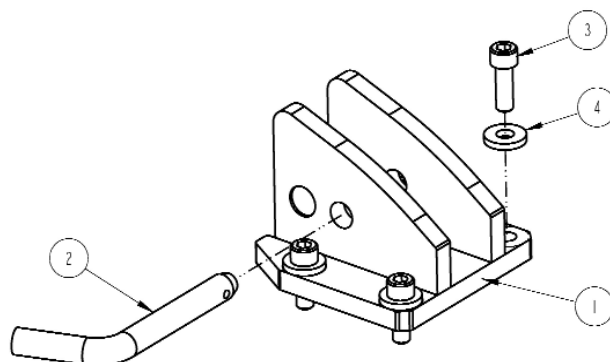
HTA9550

FIGURE 2-E – V-WEDGE CHAIN CLAMP ASSEMBLY

PARTS LIST COVERING FIGURE “2-E”

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|-------------|--|
| - | HTA9550 | Ref. |V-Wedge Chain Clamp Assembly includes |
| 1 | HTA9561 | 1 |Nut Block |
| 2 | HTA9562 | 1 |Tension Pin |
| 3 | HTA9565 | 1 |Vise Screw |
| 4 | HTA9568 | 1 |Handle |
| 5 | HTA9655 | 1 |Vee Wedge Weldment |
| 6 | PHM632 | 1 |Leaf Chain |
| 7 | PHP206 | 1 |Hitch Pin |
| 8 | PHP448 | 2 |Roll Pin |
| 9 | PHSM448 | 4 |Screw (M10 x 1,5 x 30mm SHCS) |
| 10 | PHSM515 | 4 |Screw (M8 x 1,25 x 25mm SHCS) |
| 11 | PHSM716 | 2 |Screw (M8 x 1,25 x 16mm SHCS) |
| 12 | PHSM985 | 2 |Screw (M10 x 1.5 x 10MM SHCS) |
| 13 | PHWM501 | 4 |Flatwasher (M8) |
| 14 | PHWM567 | 4 |Flatwasher (M10) |

N/S indicates Not Shown



HTA9570

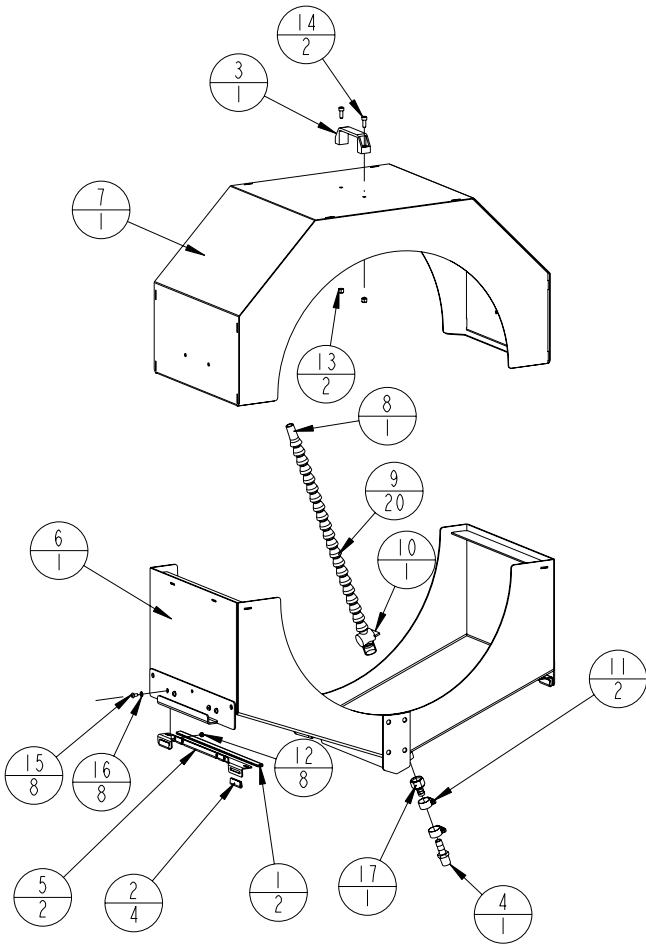
FIGURE 2-F – V-WEDGE ASSEMBLY

PARTS LIST COVERING FIGURE “2-F”

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|-------------|--------------------------------------|
| - | HTA9570 | Ref. |V-Wedge Assembly includes |
| 1 | HTA9575 | 1 |Vee Wedge Weldment |
| 2 | PHP206 | 1 |Hitch Pin |
| 3 | PHSM448 | 4 |Screw (M10 x 1,5 x 30mm SHCS) |
| 4 | PHWM567 | 4 |Flatwasher (M10) |

N/S indicates Not Shown

SECTION II
COMPONENTS



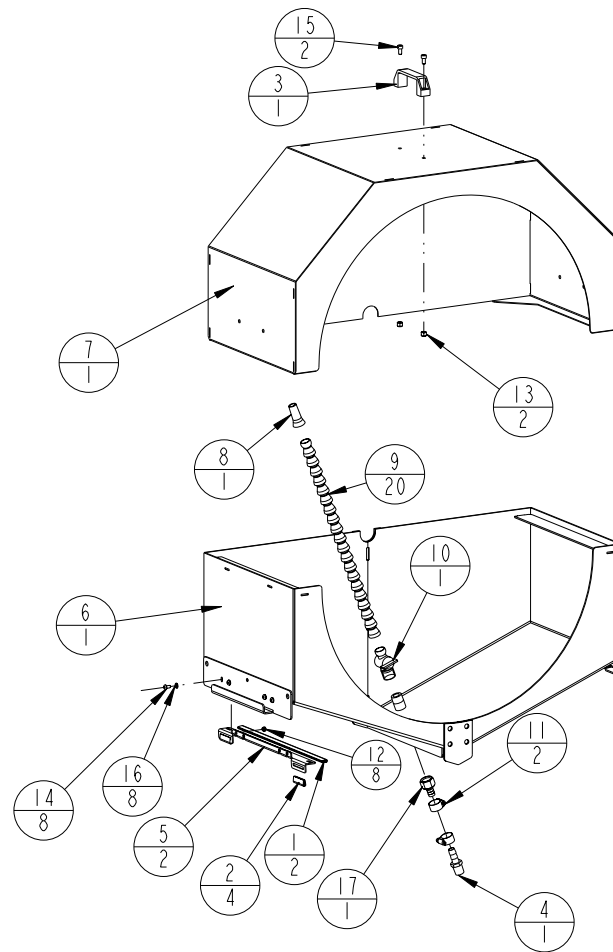
HTA8100

FIGURE 2-H – SPLASH GUARD ASSEMBLY - TOOL END

PARTS LIST COVERING FIGURE “2-H”

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|------|--|
| - | HTA8100 | Ref. | Splash Guard Assembly - Tool End <i>includes</i> |
| 1 | 891325 | 2 |Bumper Strip |
| 2 | 891326 | 4 |Bumper Strip |
| 3 | ECA7954 | 1 |Handle |
| 4 | F46972 | 1 |Hose |
| 5 | HTA8103 | 2 |Glide Strip Angle |
| 6 | HTA8105 | 1 |Splash Guard Base |
| 7 | HTA8115 | 1 |Splash Guard Cover |
| 8 | PHM461 | 1 |Nozzle |
| 9 | PHM464 | 20 |Flexible Hose Segment |
| 10 | PHM832 | 1 |Valve |
| 11 | PHM872 | 2 |Hose Clamp |
| 12 | PHNM434 | 8 |Nut |
| 13 | PHNM487 | 2 |Locknut (M6) |
| 14 | PHSM405 | 2 |Screw (M6 x 16mm SHCS) |
| 15 | PHSM431 | 2 |Screw (M5 x 0,8 x 10mm BSHCS) |
| 16 | PHWM519 | 8 |Flatwasher (M5) |
| 17 | PPP570 | 1 |Hose Nipple |

N/S indicates Not Shown



HTA8200

FIGURE 2-G – SPLASH GUARD ASSEMBLY - MACHINE END

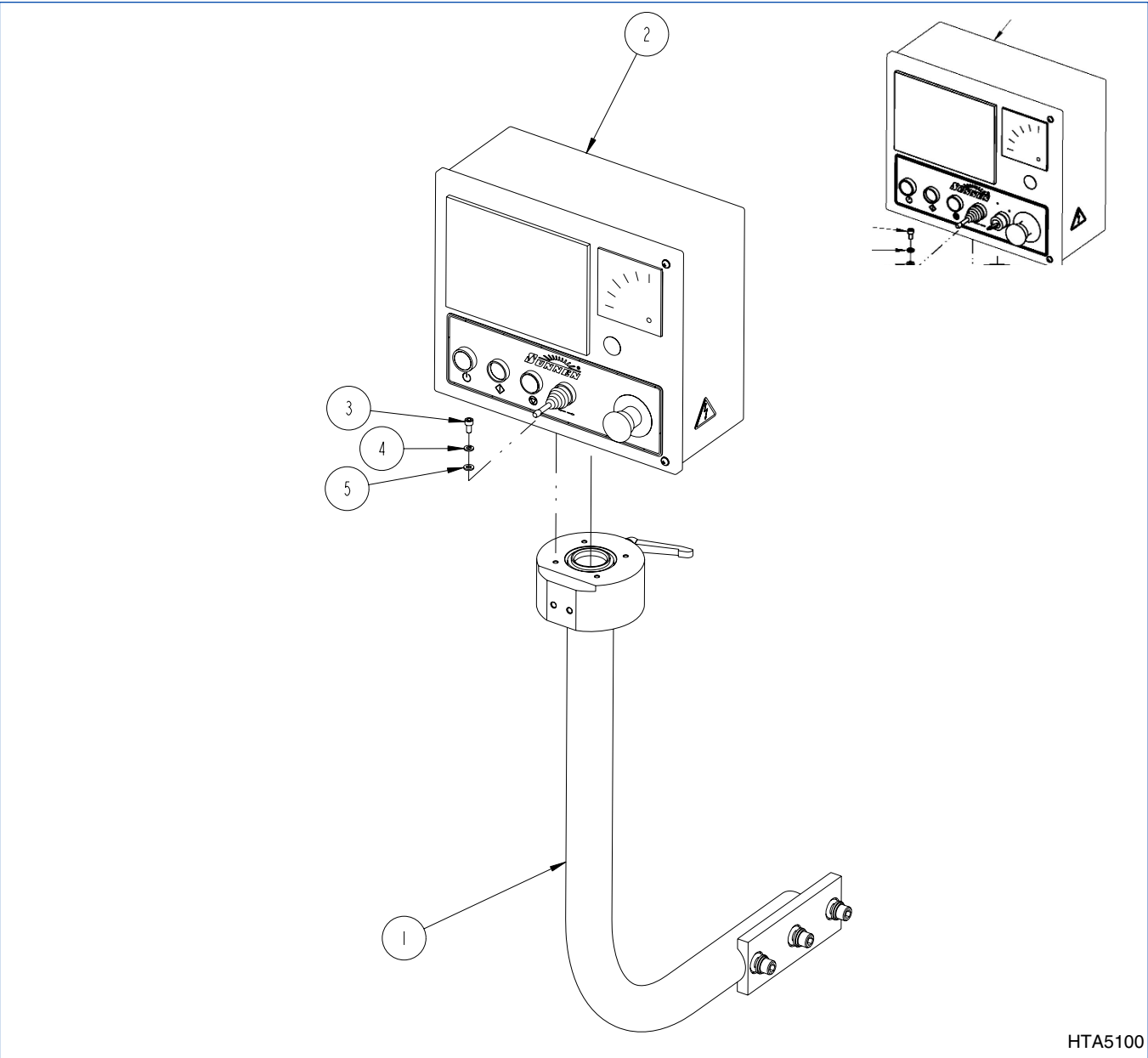
PARTS LIST COVERING FIGURE “2-g”

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|-------------|---|
| - | HTA8200 | Ref. |Splash Guard Assembly - Tool End <i>includes</i> |
| 1 | 891325 | 2 |Bumper Strip |
| 2 | 891326 | 4 |Bumper Strip |
| 3 | ECA7954 | 1 |Handle |
| 4 | F46972 | 1 |Hose |
| 5 | HTA8103 | 2 |Glide Strip Angle |
| 6 | HTA8205 | 1 |Splash Guard Base |
| 7 | HTA8215 | 1 |Splash Guard Cover |
| 8 | PHM461 | 1 |Nozzle |
| 9 | PHM464 | 20 |Flexible Hose Segment |
| 10 | PHM832 | 1 |Valve |
| 11 | PHM872 | 2 |Hose Clamp |
| 12 | PHNM434 | 8 |Nut |
| 13 | PHNM487 | 2 |Locknut (M6) |
| 14 | PHSM431 | 2 |Screw (M5 x 0,8 x 10mm BSHCS) |
| 15 | PHSM535 | 2 |Screw (M6 x 12mm SHCS) |
| 16 | PHWM519 | 8 |Flatwasher (M5) |
| 17 | PPP570 | 1 |Hose Nipple |

N/S indicates Not Shown

SECTION II

COMPONENTS



HTA5100

FIGURE 2-I – HTA OPERATOR STATION

PARTS LIST COVERING FIGURE “2-I”

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|-------------|--|
| - | HTA5100 / CE | Ref. |HTA Operator Station <i>includes</i> |
| 1 | HTA5105CE | 1 |Control Panel Support Assembly (<i>see Fig. 2-J</i>) |
| 2 | HTA5115 | 1 |Operator Box Assembly (<i>see Fig. 4-A</i>) |
| 2 | HTA5115CE | 1 |Operator Box Assembly (<i>CE Models ONLY</i>) (<i>see Fig. 4-B</i>) |
| 3 | PHSM535 | 4 |Screw (M6 x 1,0 x 12mm SHCS) |
| 4 | PHWM509 | 4 |Lockwasher (M6) |
| 5 | PHWM518 | 4 |Flatwasher (M6) |

N/S indicates Not Shown

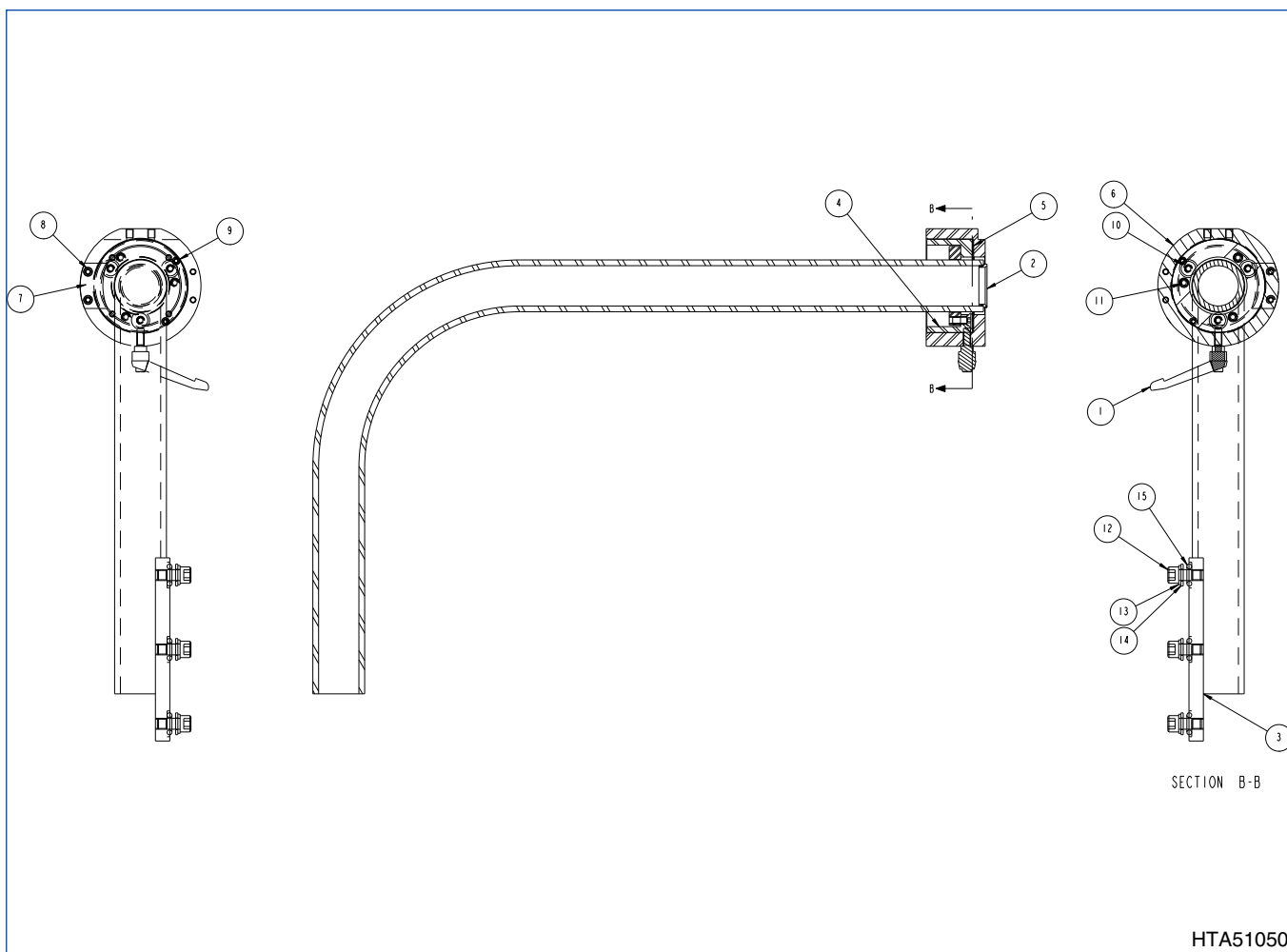
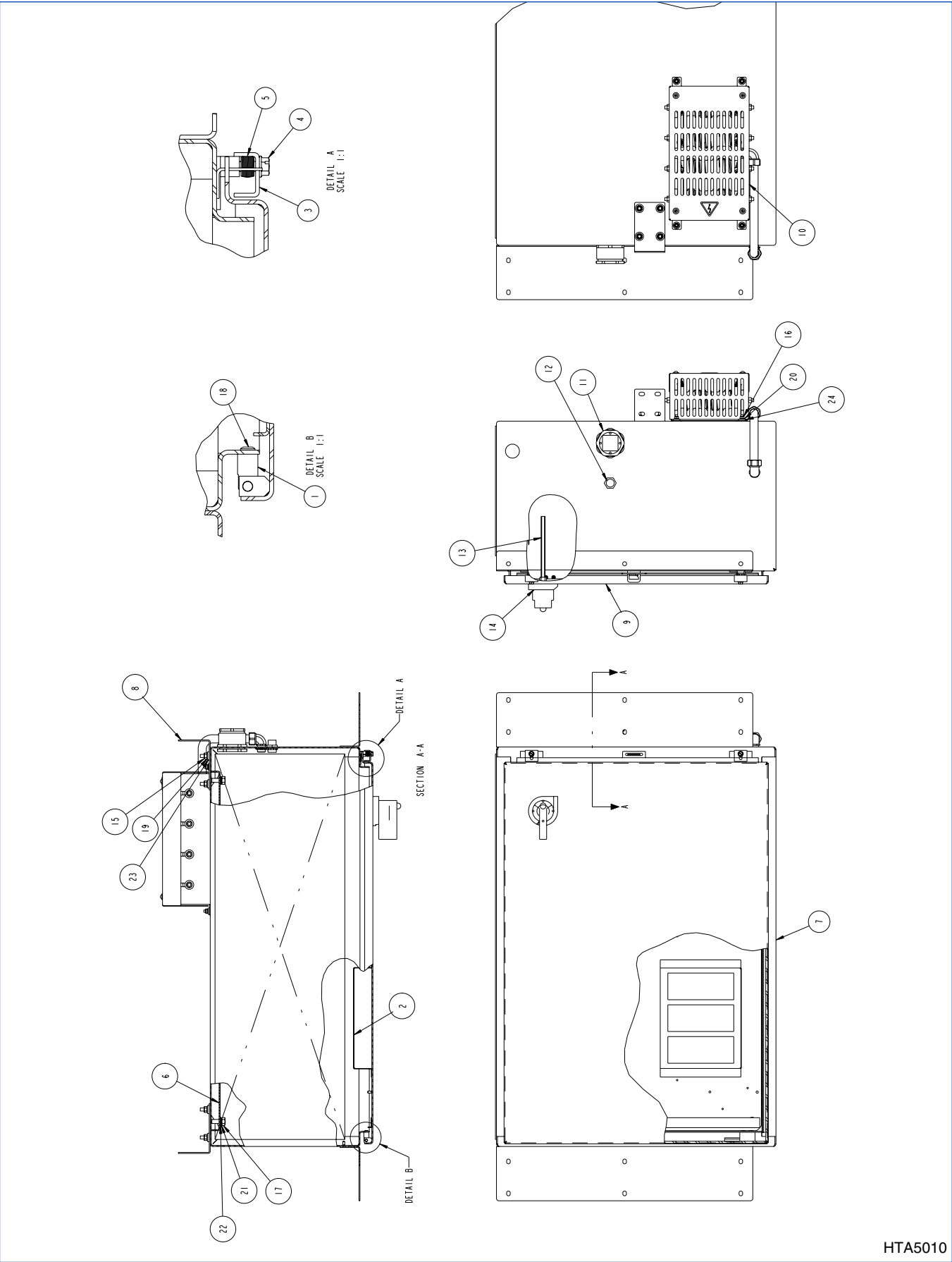


FIGURE 2-J – CONTROL PANEL SUPPORT ASSEMBLY

PARTS LIST COVERING FIGURE “2-J”

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|-------------|---|
| - | HTA5105 / CE | Ref. |Control Panel Support Assembly <i>includes</i> |
| 1 | CHW721 | 1 |Stud Type Adjustable Handle |
| 2 | EC4772 | 1 |Bushing |
| 3 | HTA5110CE | 1 |Control Panel Support |
| 4 | ML4312 | 1 |Adjusting Collar |
| 5 | ML4313 | 1 |Washer |
| 6 | ML4314 | 1 |Enclosure Coupling |
| 7 | ML4317 | 2 |Retainer |
| 8 | PHSM405 | 4 |Screw (M6 x 1,0 x 16mm SHCS) |
| 9 | PHSM506 | 1 |Screw (M5 x 0,8 x 8mm SHCS) |
| 10 | PHSM514 | 3 |Screw (M8 x 1,25 x 20mm FSHCS) |
| 11 | PHSM618 | 3 |Screw (M10 x 1,5 x 10mm SHSS) |
| 12 | PHSM984 | 3 |Screw |
| 13 | PHWM408 | 3 |Lockwasher (M12) |
| 14 | PHWM512 | 3 |Flatwasher (M12) |
| 15 | POR160 | 3 |O-Ring |

N/S indicates Not Shown



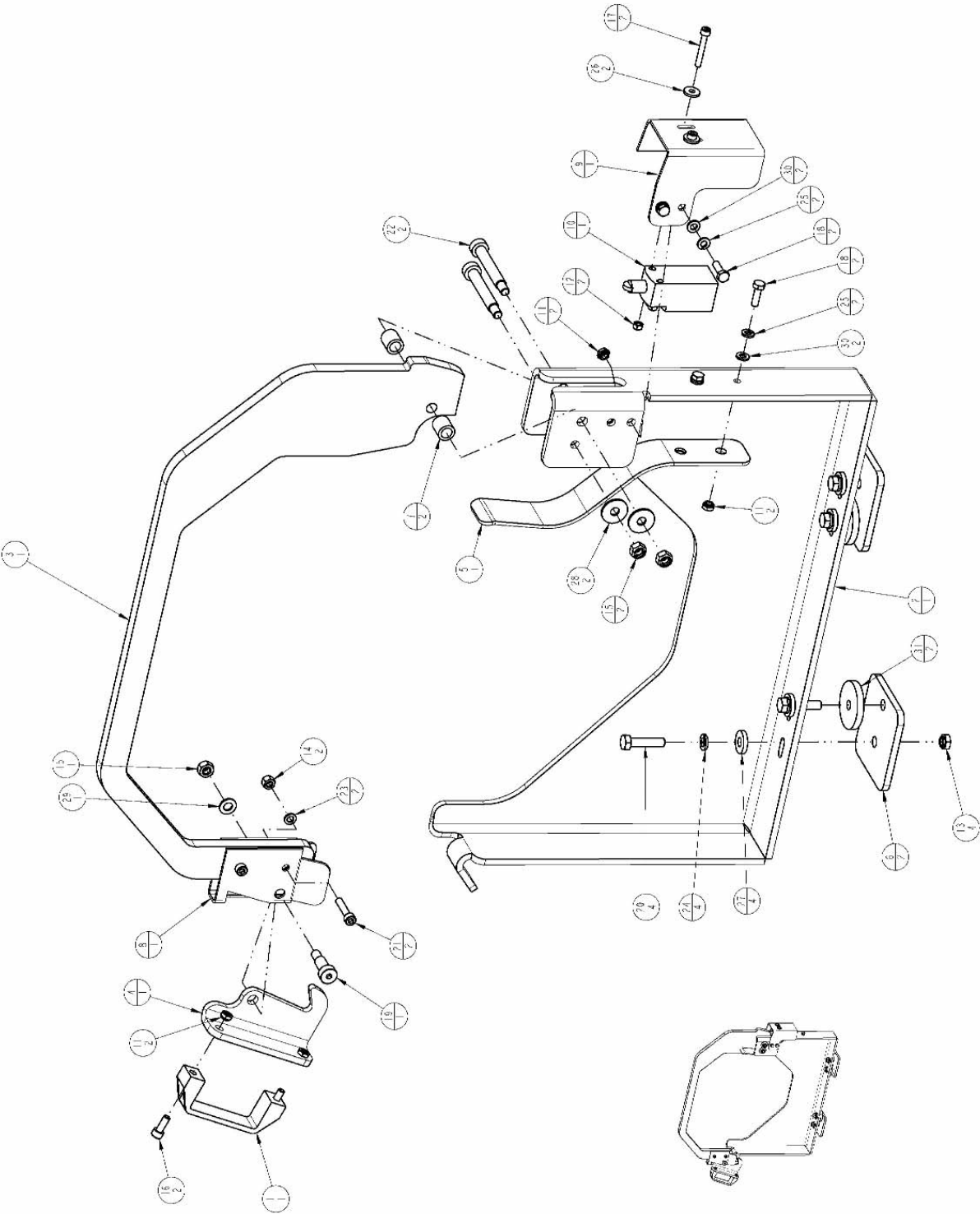
HTA5010

FIGURE 2-K – BASE ELECTRICAL ENCLOSURE ASSEMBLY

PARTS LIST COVERING FIGURE "2-K"

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|------|--|
| - | HTA5010 | Ref. |Base Electrical Enclosure Assembly <i>includes</i> |
| 1 | CK6172 | 2 |Enclosure Hinge Half |
| 2 | CK6183 | 1 |Print Holder |
| 3 | HBS2643 | 2 |Hold Down Bracket |
| 4 | HBS2644 | 2 |Clip Bolt |
| 5 | HBS2646 | 2 |Clip Spring |
| 6 | HTA5005 | 1 |Main Electrical Panel <i>(see Fig. 4-C)</i> |
| 7 | HTA5015 | 1 |Enclosure |
| 8 | HTA5017 | 2 |Bracket |
| 9 | HTA5020 | 1 |Door |
| 10 | HTA5050 | 1 |Braking Resistor Box <i>(see Fig. 4-D)</i> |
| 11 | PEC379 | 1 |Cable Entry Seal |
| 12 | PEC383 | 1 |4 Pole Plug |
| 13 | PEM991 | 1 |Disconnect Shaft |
| 14 | PEM994 | 1 |Pistol Handle |
| 15 | PHNM401 | 8 |Nut, Hex (M8 x 1,25) |
| 16 | PHNM407 | 4 |Nut, Hex (M6 x 1,0) |
| 17 | PHNM419 | 4 |Nut, Hex (M10 x 1,5) |
| 18 | PHS511 | 4 |Screw (#10-24 x 3/8 BSHCS) |
| 19 | PHWM407 | 8 |Lockwasher (M8) |
| 20 | PHWM509 | 4 |Lockwasher (M6) |
| 21 | PHWM521 | 4 |Lockwasher (M10) |
| 22 | PHWM531 | 4 |Flatwasher (M10) |
| 23 | PHWM532 | 8 |Flatwasher (M8) |
| 24 | PHWM534 | 4 |Flatwasher (M6) |
| N/S | CBL7202000 | 1 |HTA2000 Cable Set |

N/S indicates Not Shown



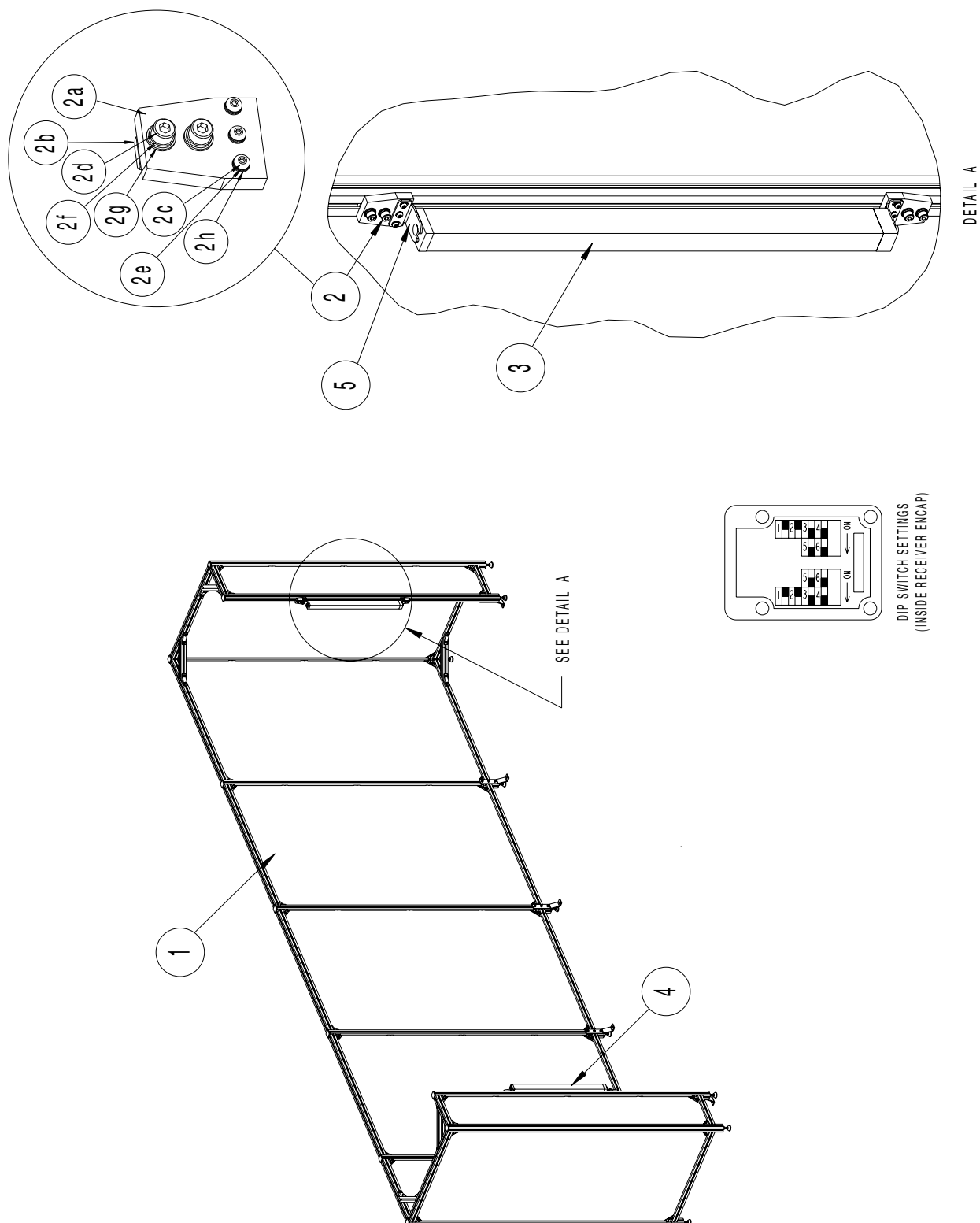
HTA2025

FIGURE 2-L – RAIL SUPPORT

PARTS LIST COVERING FIGURE "2-L"

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|-------------|------------------------------------|
| - | HTA2025 | Ref. |Rail Support includes |
| 1 | ECA7954 | 1 |Handle |
| 2 | HTA2017 | 1 |Safety Tool Arch Support |
| 3 | HTA2018 | 1 |Tool Safety Arch |
| 4 | HTA2019 | 1 |Latch Hook |
| 5 | HTA2021 | 1 |Holder Support |
| 6 | HTA2022 | 2 |Holder Support |
| 7 | HTA2026 | 2 |Holder Support |
| 8 | HTA2028 | 1 |Handle Cover |
| 9 | HTA2029 | 1 |Oil Splash Cover |
| 10 | PES809 | 1 |Roller Plunger Limit Switch |
| 11 | PHNM436 | 6 |Nut (M6 X 1,0) |
| 12 | PHNM441 | 2 |Locknut (M5 X 0,8) |
| 13 | PHNM467 | 4 |Nut, Insert (M8 X 1,8) |
| 14 | PHNM487 | 2 |Locknut (M6 X 1,0) |
| 15 | PHNM507 | 3 |Nut, Hex (M8 X 1,25) |
| 16 | PHSM405 | 2 |Screw (M6 X 1,0 X 16mm SHCS) |
| 17 | PHSM415 | 2 |Screw (M5 X 0,8 X 35mm SHCS) |
| 18 | PHSM424 | 4 |Screw (M6 X 1,0 X 20mm HHCS) |
| 19 | PHSM532 | 1 |Screw (M10 X 20mm, SHSCS) |
| 20 | PHSM598 | 4 |Screw (M8 X 1,25 X 35mm HHCS) |
| 21 | PHSM607 | 2 |Screw (M6 X 1,0 X 30mm SHCS) |
| 22 | PHSM987 | 2 |Screw |
| 23 | PHW354 | 3 |Flatwasher (M6) |
| 24 | PHWM407 | 4 |Lockwasher (M8) |
| 25 | PHWM509 | 4 |Lockwasher (M6) |
| 26 | PHWM511 | 2 |Flatwasher (M5) |
| 27 | PHWM532 | 4 |Flatwasher (M8) |
| 28 | PHWM536 | 2 |Washer (M8) |
| 29 | PHWM539 | 3 |Flatwasher (M8) |
| 30 | PHWM541 | 4 |Flatwasher (M6) |
| 31 | SV54023 | 2 |Washer |

N/S indicates Not Shown



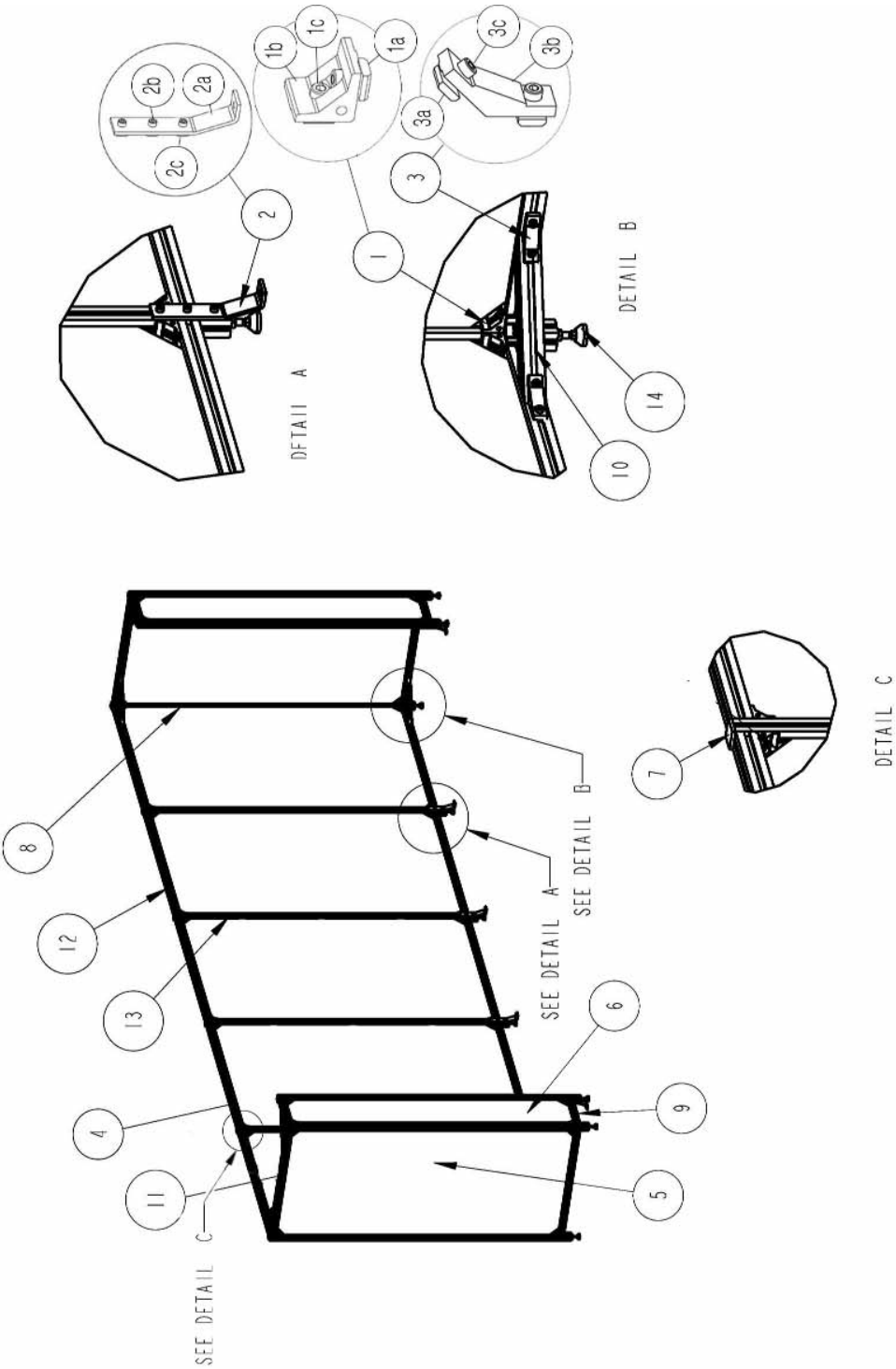
HTA8400

FIGURE 2-M – 4 METER GUARD ASSEMBLY - CE

PARTS LIST COVERING FIGURE "2-M"

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|-------------|---|
| - | HTA8400 | Ref. |2 Meter Guard Assembly (CE Models ONLY) includes |
| 1 | HTA8405 | 1 |Extrusion Guard Assembly <i>(see Fig. 2-N)</i> |
| 2 | HTA8510 | 4 |Light Curtain Mountinig Bracket Assembly <i>includes</i> |
| 2a | HTA8511 | 1 |Light Curtain Mounting Bracket |
| 2b | PHNM445 | 2 |Nut, T-Slot |
| 2c | PHSM434 | 3 |Screw (M5 x 0,8 x 16mm BSHCS) |
| 2d | PHSM515 | 2 |Screw (M8 x 25mm SHCS) |
| 2e | PHWM406 | 3 |Lockwasher (M5) |
| 2f | PHWM407 | 2 |Lockwasher (M8) |
| 2g | PHWM501 | 2 |Flatwasher (M8) |
| 2h | PHWM519 | 3 |Flatwasher (M5) |
| 3 | PED31581 | 1 |Light Curtain, Transmitter |
| 4 | PED31582 | 1 |Light Curtain, Receiver |
| 5 | PED31583 | 4 |Light Curtain, Bracket |

N/S indicates Not Shown



HTA8405

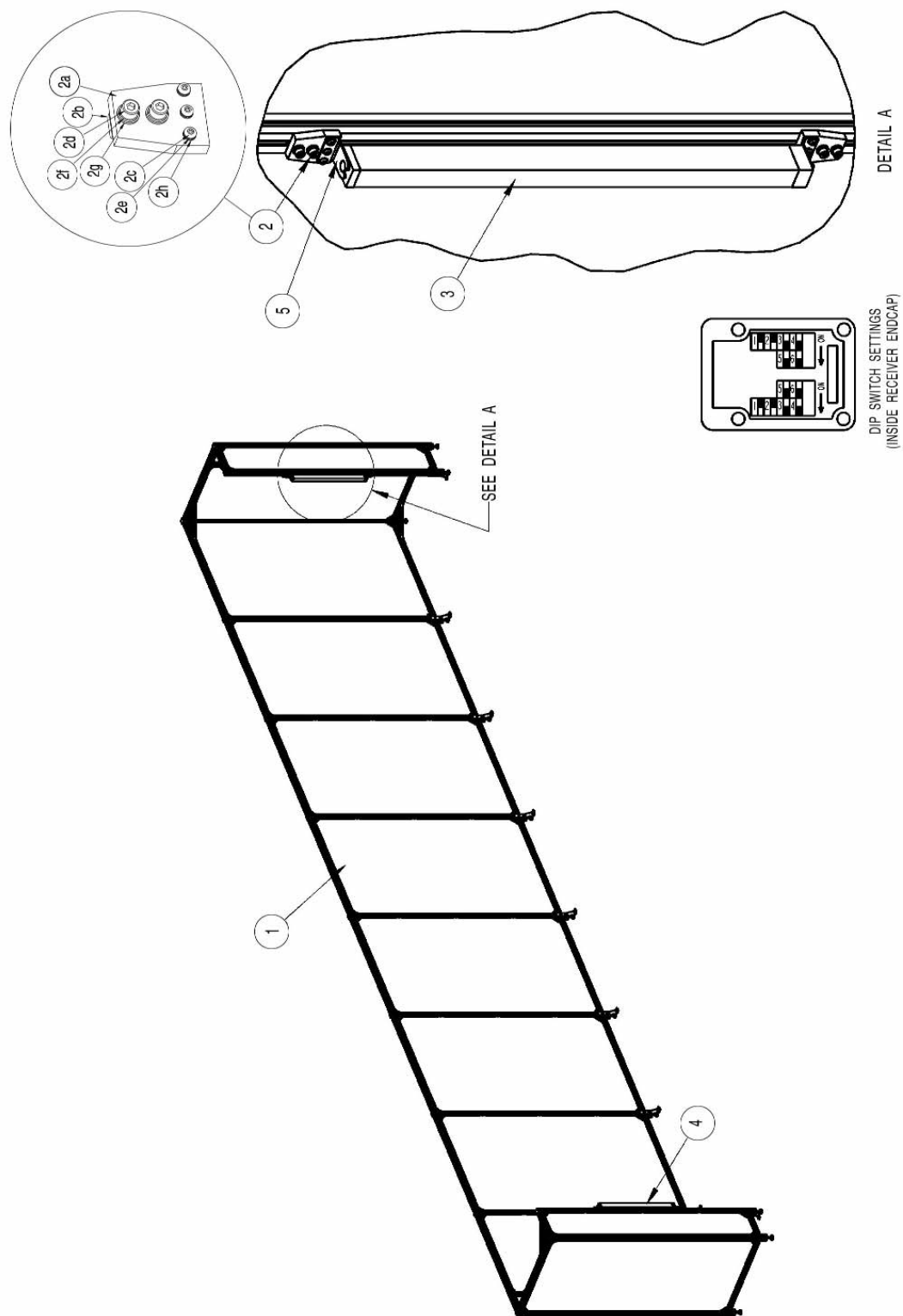
FIGURE 2-N – 2 METER EXTRUSION GUARD ASSEMBLY - CE

PARTS LIST COVERING FIGURE "2-N"

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|-------------|---|
| - | HTA8505 | Ref. |2 Meter Extrusion Guard Assembly (CE Models ONLY) includes |
| 1 | HTA85051 | 36 |Angle Assembly E40S |
| 1a | --- | 2 |Nut (M8) |
| 1b | --- | 1 |Angle 90° |
| 1c | --- | 2 |Screw (M8 x 16mm SHCS) |
| 2 | HTA85052 | 6 |Support Bracket Assembly |
| 2a | --- | 1 |Column Support Bracket |
| 2b | --- | 3 |Nut (M8) |
| 2c | --- | 3 |Screw (M8 x 16mm SHCS) |
| 3 | HTA85053 | 16 |Angle Assembly M25S |
| 3a | --- | 2 |Nut (M8) |
| 3b | --- | 1 |Angle 45° |
| 3c | --- | 2 |Screw (M8 x 20mm SHCS) |
| 4 | HTA85055 | 5 |Panel (48 x 79") |
| 5 | HTA85056 | 2 |Panel (36 x 79") |
| 6 | HTA85057 | 2 |Panel (12 x 79") |
| 7 | --- | 10 |MK Series 40 Cover Plate |
| 8 | --- | 72 |Fence Clip |
| 9 | --- | 4 |Extrusion (40 x 40 x 286,8mm) |
| 10 | --- | 8 |Extrusion (40 x 40 x 304,8mm w/45° Ends) |
| 11 | --- | 4 |Extrusion (40 x 40 x 896,4mm) |
| 12 | --- | 10 |Extrusion (40 x 40 x 1201,2mm) |
| 13 | --- | 10 |Extrusion (40 x 40 x 2133,6mm) |
| 14 | --- | 10 |M12 Leveling Pad Assembly |

N/S indicates Not Shown

SECTION II
COMPONENTS



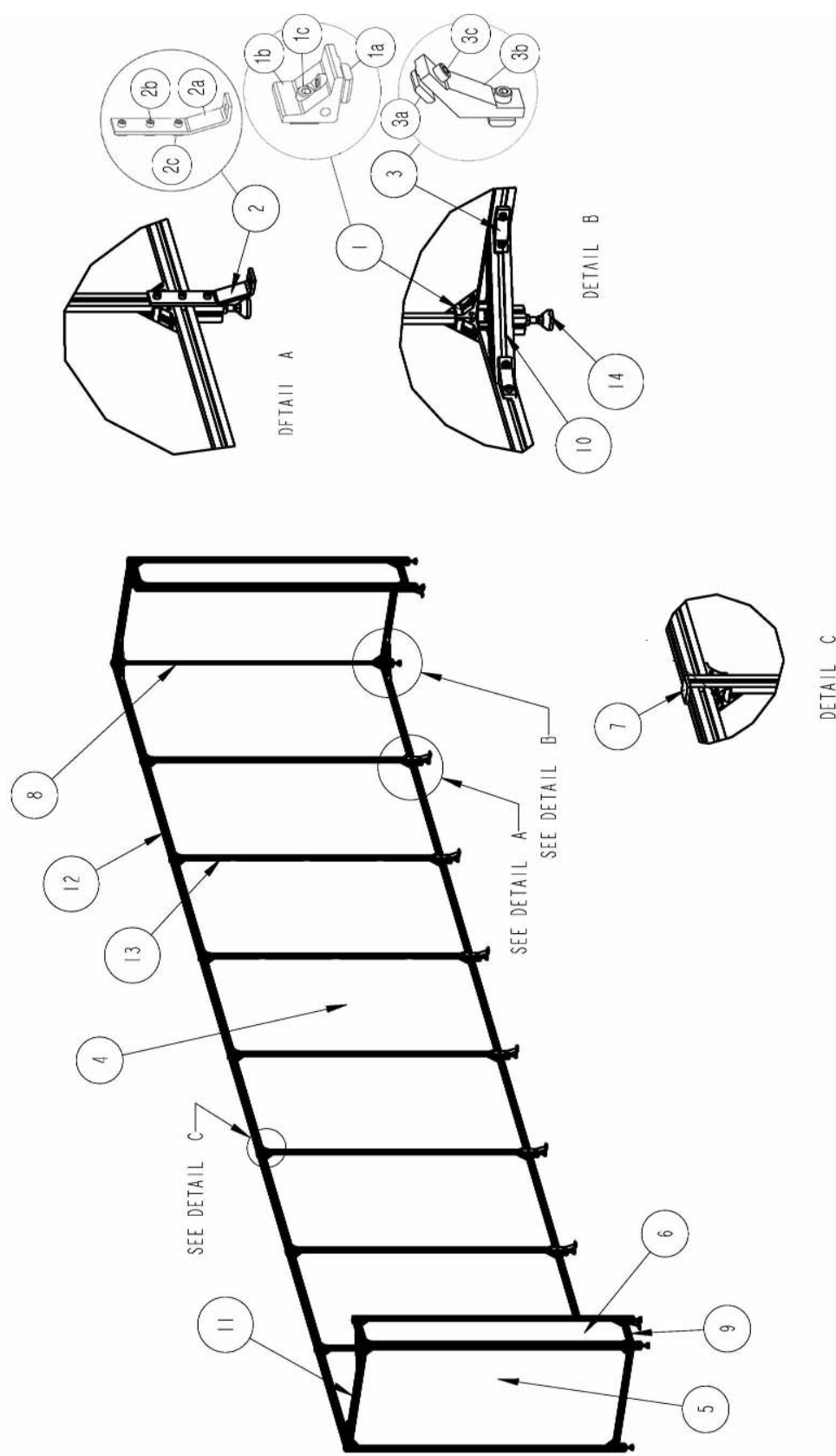
HTA8500

FIGURE 2-O – 4 METER GUARD ASSEMBLY - CE

PARTS LIST COVERING FIGURE "2-O"

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|-------------|---|
| - | HTA8500 | Ref. |4 Meter Guard Assembly (CE Models ONLY) includes |
| 1 | HTA8505 | 1 |Extrusion Guard Assembly (<i>see Fig. 2-P</i>) |
| 2 | HTA8510 | 4 |Light Curtain Mountinig Bracket Assembly <i>includes</i> |
| 2a | HTA8511 | 1 |Light Curtain Mounting Bracket |
| 2b | PHNM445 | 2 |Nut, T-Slot |
| 2c | PHSM434 | 3 |Screw (M5 x 0,8 x 16mm BSHCS) |
| 2d | PHSM515 | 2 |Screw (M8 x 25mm SHCS) |
| 2e | PHWM406 | 3 |Lockwasher (M5) |
| 2f | PHWM407 | 2 |Lockwasher (M8) |
| 2g | PHWM501 | 2 |Flatwasher (M8) |
| 2h | PHWM519 | 3 |Flatwasher (M5) |
| 3 | PED31581 | 1 |Light Curtain, Transmitter |
| 4 | PED31582 | 1 |Light Curtain, Receiver |
| 5 | PED31583 | 4 |Light Curtain, Bracket |

N/S indicates Not Shown



HTA8505

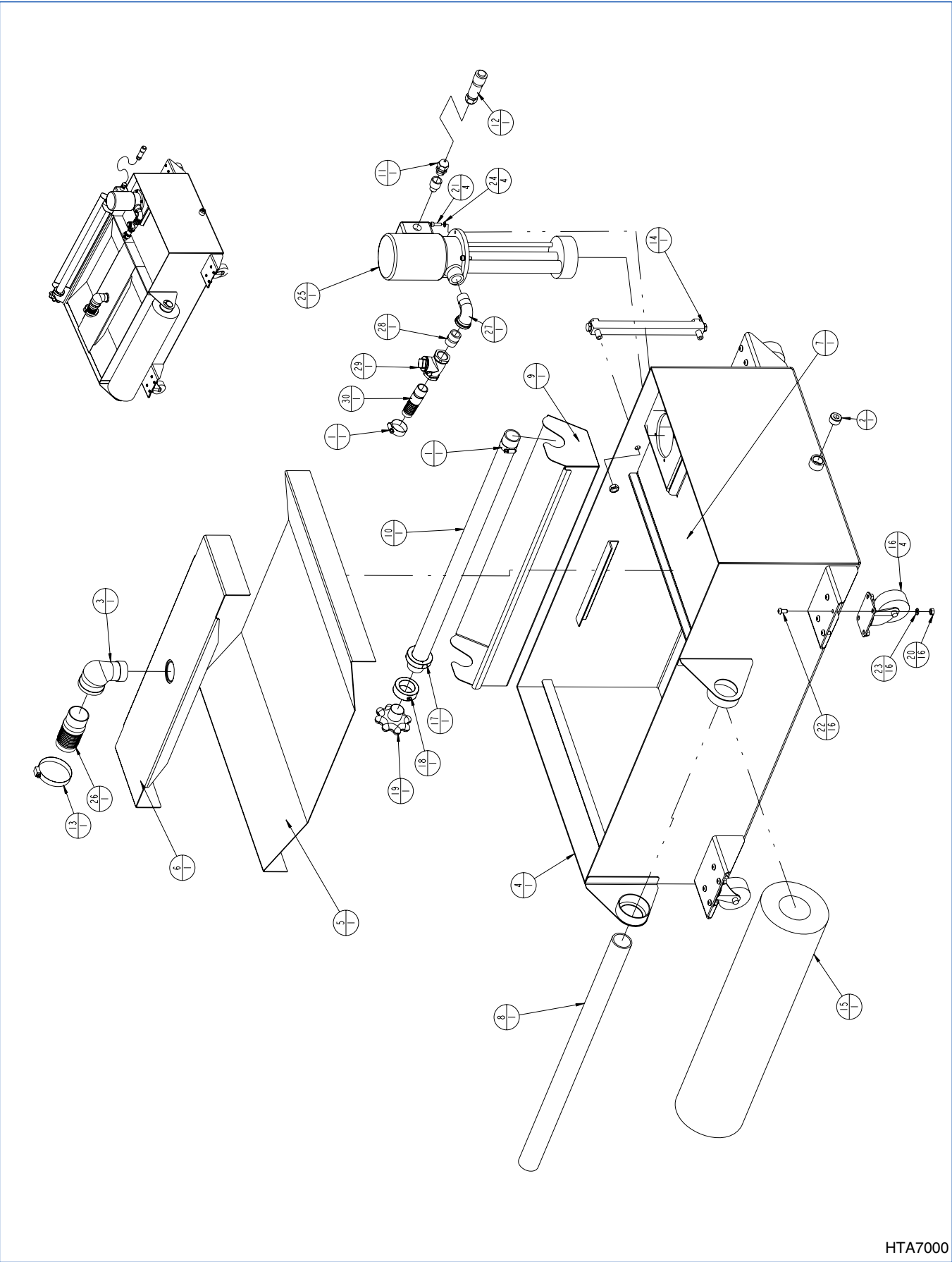
FIGURE 2-P – 4 METER EXTRUSION GUARD ASSEMBLY - CE

PARTS LIST COVERING FIGURE "2-P"

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|-------------|---|
| - | HTA8505 | Ref. |4 Meter Extrusion Guard Assembly (CE Models ONLY) includes |
| 1 | HTA85051 | 48 |Angle Assembly E40S |
| 1a | --- | 2 |Nut (M8) |
| 1b | --- | 1 |Angle 90° |
| 1c | --- | 2 |Screw (M8 x 16mm SHCS) |
| 2 | HTA85052 | 9 |Support Bracket Assembly |
| 2a | --- | 1 |Column Support Bracket |
| 2b | --- | 3 |Nut (M8) |
| 2c | --- | 3 |Screw (M8 x 16mm SHCS) |
| 3 | HTA85053 | 16 |Angle Assembly M25S |
| 3a | --- | 2 |Nut (M8) |
| 3b | --- | 1 |Angle 45° |
| 3c | --- | 2 |Screw (M8 x 20mm SHCS) |
| 4 | HTA85055 | 8 |Panel (48 x 79") |
| 5 | HTA85056 | 2 |Panel (36 x 79") |
| 6 | HTA85057 | 2 |Panel (12 x 79") |
| 7 | --- | 13 |MK Series 40 Cover Plate |
| 8 | --- | 72 |Fence Clip |
| 9 | --- | 4 |Extrusion (40 x 40 x 286,8mm) |
| 10 | --- | 8 |Extrusion (40 x 40 x 304,8mm w/45° Ends) |
| 11 | --- | 4 |Extrusion (40 x 40 x 896,4mm) |
| 12 | --- | 16 |Extrusion (40 x 40 x 1201,2mm) |
| 13 | --- | 13 |Extrusion (40 x 40 x 2133,6mm) |
| 14 | --- | 13 |M12 Leveling Pad Assembly |

N/S indicates Not Shown

SECTION III - COOLANT TANK



HTA7000

FIGURE 3-A - COOLANT TANK ASSEMBLY

PARTS LIST COVERING FIGURE "3-A"

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|-------------|---|
| - | HTA7000 | Ref. |Coolant Tank Assembly includes |
| 1 | CK1292 | 2 |Hose Clamp |
| 2 | F1520 | 1 |Pipe Plug |
| 3 | F1927 | 1 |Street Elbow, 90° |
| 4 | HTA7010 | 1 |Coolant Tank Weldment Assembly |
| 5 | HTA7026 | 1 |Screen |
| 6 | HTA7030 | 1 |Diffuser Weldment |
| 7 | HTA7036 | 1 |Tank Cover |
| 8 | HTA7037 | 1 |Roll Bar |
| 9 | HTA7044 | 1 |Filter Paper Tray |
| 10 | HTA7046 | 1 |Roll-Up Bar |
| 11 | PEC380 | 1 |Strain Relief Connector |
| 12 | PEC382 | 1 |4 Pole Receptacle |
| 13 | PEM874 | 1 |Hose Clamp |
| 14 | PFC205 | 1 |Liquid Level Gauge |
| 15 | PFC234 | 1 |Paper, Filter |
| 16 | PHM631 | 4 |Caster |
| 17 | PHM636 | 1 |Clamp Collar |
| 18 | PHM637 | 1 |Setscrew Collar |
| 19 | PHM638 | 1 |Knob |
| 20 | PHNM401 | 16 |Nut, Hex (M8 X 1,25) |
| 21 | PHSM534 | 4 |Screw (M6 X 1,0 X 20mm SHCS) |
| 22 | PHSM716 | 16 |Screw (M8 X 1,25 X 16mm SHCS) |
| 23 | PHWM407 | 16 |Lockwasher (M8) |
| 24 | PHWM509 | 4 |Lockwasher(M6) |
| 25 | PMO171 | 1 |Immersion Pump With Motor |
| 26 | PPP528 | 1 |Hose Barb |
| 27 | PPP609 | 1 |Street Elbow (3/4") |
| 28 | PPP623 | 1 |Pipe Nipple (3/4") |
| 29 | PPP756 | 1 |Check Valve (3/4") |
| 30 | PPP785 | 1 |Hose Barb Fitting |
| N/S | CBL696 | 1 |Cable, Coolant Power |

N/S indicates Not Shown

SECTION IV - ELECTRICAL

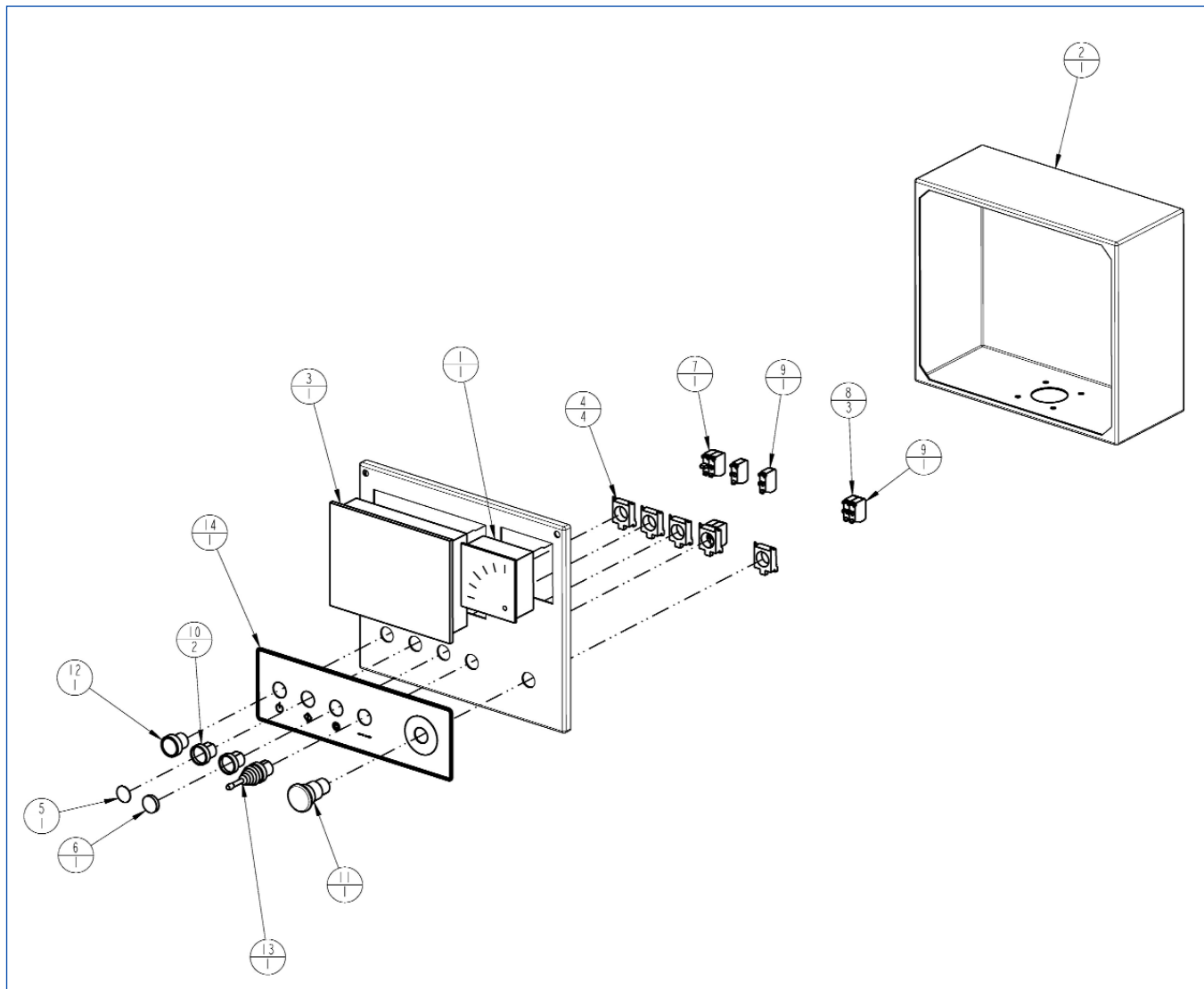


FIGURE 4-A – OPERATOR BOX ASSEMBLY

PARTS LIST COVERING FIGURE “4-A”

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|-------------|--|
| - | HTA5115 | Ref. |Operator Box Assembly includes |
| 1 | HL2108 | 1 |Meter |
| 2 | HTA5116 | 1 |HTA Operator Console Enclosure |
| 3 | HTA5120 | 1 |Touchscreen (Siemens MP177 6") |
| 4 | PEM961 | 4 |Mounting Collar, Die Cast |
| 5 | PEM966 | 1 |Pushbutton Cap, Flush Green |
| 6 | PEM968 | 1 |Pushbutton Cap, Extended Red |
| 7 | PEM970 | 1 |Light Block, Led White, Screw Clamp Terminals |
| 8 | PES644 | 3 |Contact, NO, Screw Term. |
| 9 | PES648 | 2 |Contact, NC, Screw Terminal |
| 10 | PES654 | 2 |Pushbutton Head W/O Cap |
| 11 | PES655 | 1 |Pushbutton, Red Mushroom |
| 12 | PES656 | 1 |Pushbutton, Illuminated, White |
| 13 | PES800 | 1 |Joystick |
| 14 | PNP522 | 1 |HTA Control Panel Overlay |

N/S indicates Not Shown

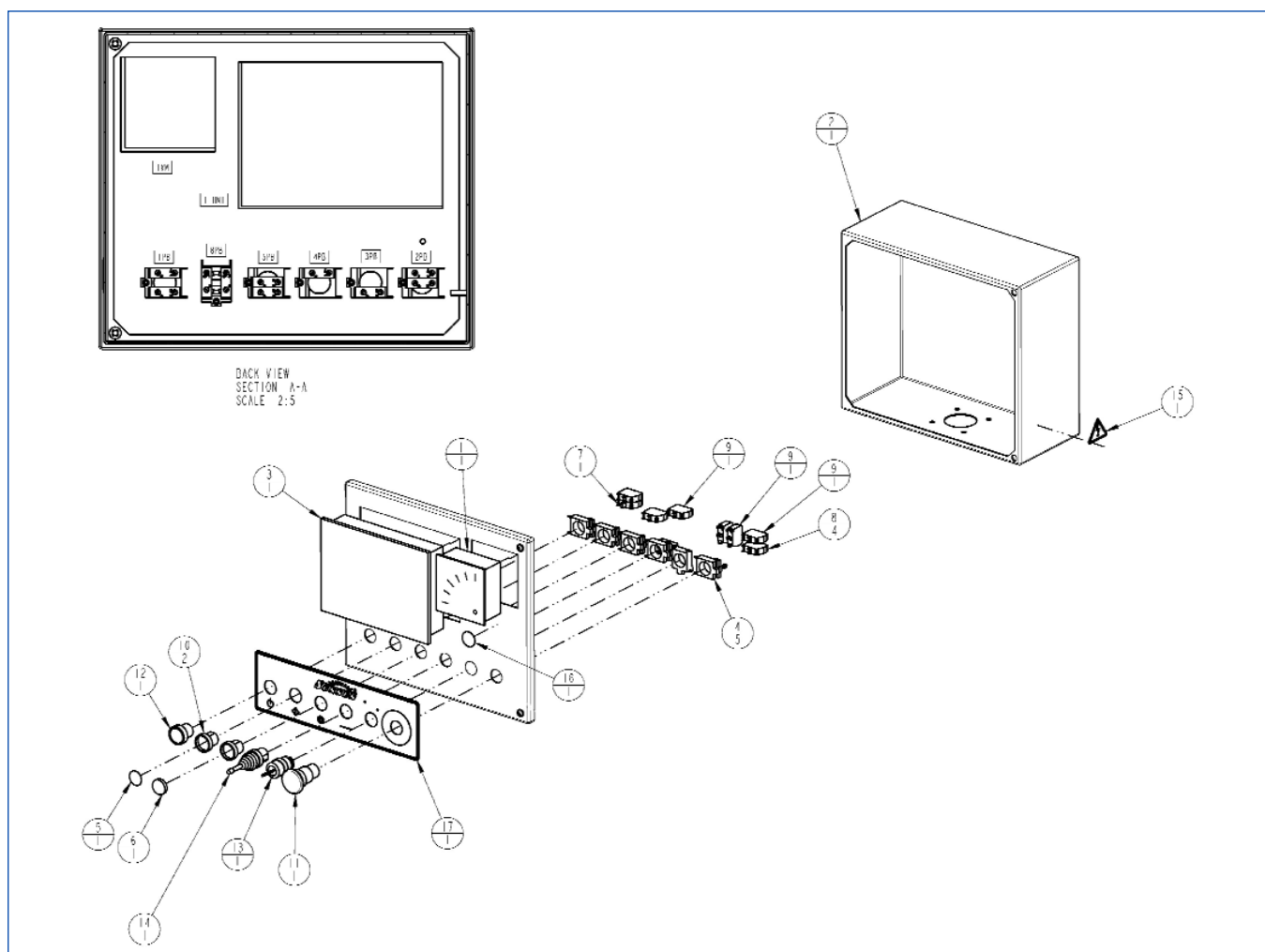


FIGURE 4-B – OPERATOR BOX ASSEMBLY - CE
PARTS LIST COVERING FIGURE “4-B”

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|-------------|--|
| - | HTA5115CE | Ref. |Operator Box Assembly (CE Models ONLY) includes |
| 1 | HL2108 | 1 |Meter |
| 2 | HTA5116 | 1 |HTA Operator Console Enclosure |
| 3 | HTA5120 | 1 |Touchscreen (Siemens MP177 6") |
| 4 | PEM961 | 4 |Mounting Collar, Die Cast |
| 5 | PEM966 | 1 |Pushbutton Cap, Flush Green |
| 6 | PEM968 | 1 |Pushbutton Cap, Extended Red |
| 7 | PEM970 | 1 |Light Block, Led White, Screw Clamp Terminals |
| 8 | PES644 | 4 |Contact, NO. Screw Term. |
| 9 | PES648 | 3 |Contact, NC, Screw Terminal |
| 10 | PES654 | 2 |Pushbutton Head W/O Cap |
| 11 | PES655 | 1 |Pushbutton, Red Mushroom |
| 12 | PES656 | 1 |Pushbutton, Illuminated, White |
| 13 | PES659 | 1 |Key Lock |
| 14 | PES800 | 1 |Joystick |
| 15 | PNP299 | 1 |Electrical Decal |
| 16 | PNP331 | 1 |Label, Safety Glass |
| 17 | PNP523 | 1 |HTA Control Panel Overlay (CE) |

N/S indicates Not Shown

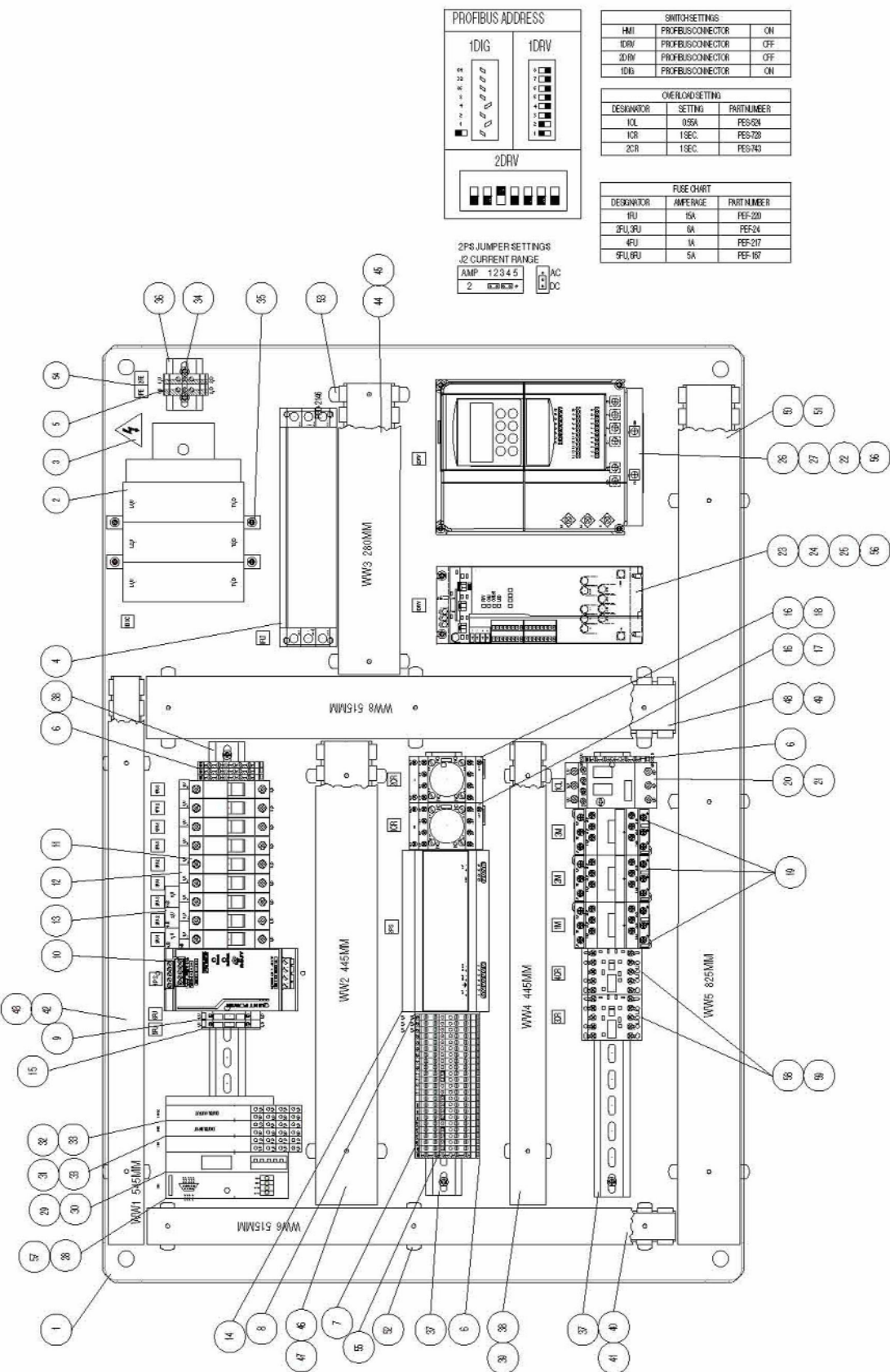
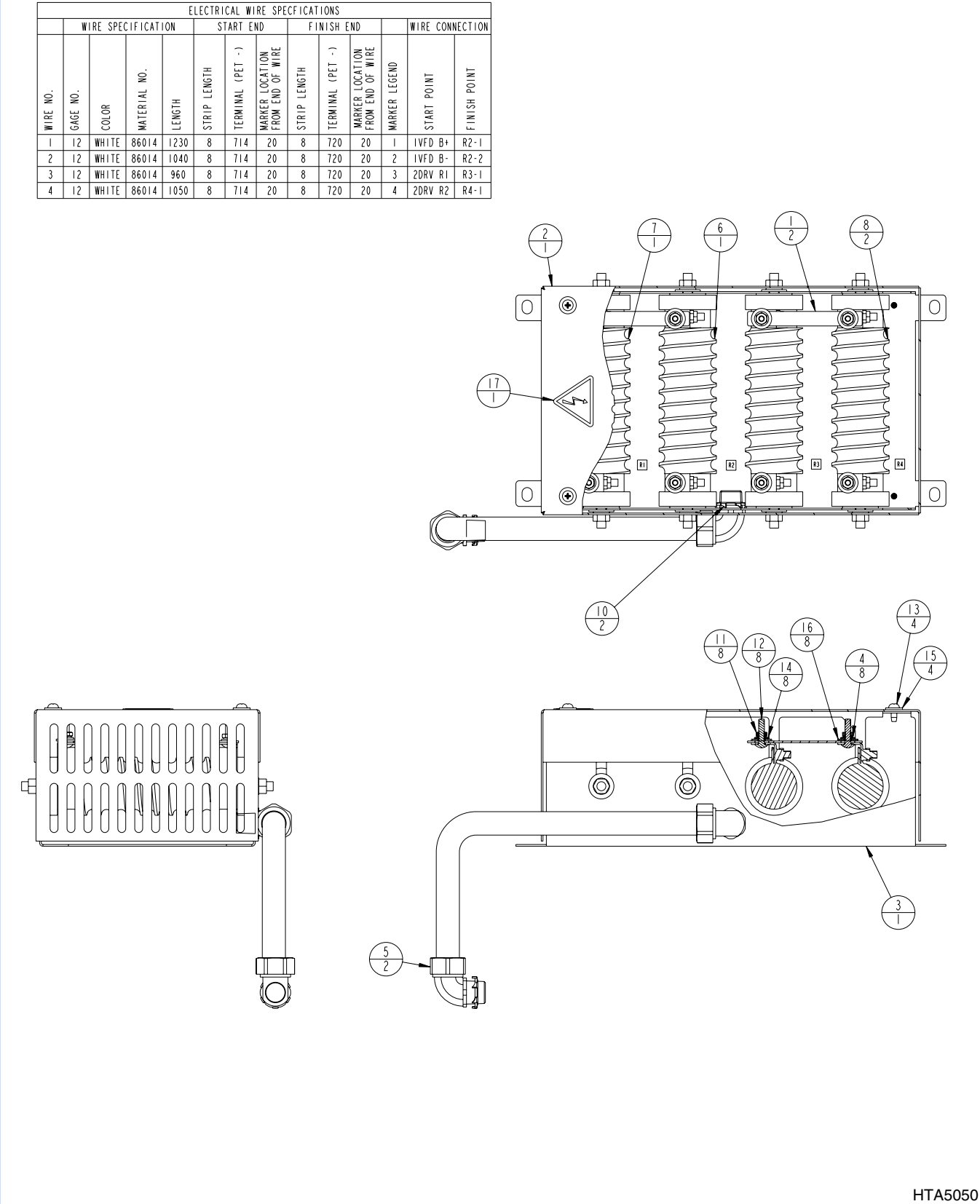


FIGURE 4-C – ELECTRICAL ENCLOSURES (2 METER)

PARTS LIST COVERING FIGURE "4-C"

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|-------------|---|
| - | HTA5005 | Ref. |Electrical Enclosures <i>includes</i> |
| 1 | HTA5006 | 1 |HTA Electrical Subpanel |
| 2 | PES685 | 1 |30A Disconnect |
| 3 | PNP299 | 1 |Electrical Decal |
| 4 | PED2146 | 1 |RFI/EMI Ac Line Filter - 500V, 18A |
| 5 | PET545 | 1 |Protective Earth Gnd |
| 6 | PEM910 | 4 |4 Pole 6mm Ground Block |
| 7 | PEM919 | 21 |4 Pole 6mm Block |
| 8 | PET184 | 1 |Terminal Block End Cap |
| 9 | PEM675 | 2 |Fuseholder |
| 10 | PED2788 | 1 |Power Supply, 3 Phase Input 24V 10A |
| 11 | PEM755 | 9 |Ultrasafe Class CC Fuseholder |
| 12 | PEM931 | 1 |Bus Bar |
| 13 | PEM1194 | 1 |Busbar Terminal (Pkg Of 4) |
| 14 | PED2791 | 1 |Power Supply For 24v Brake |
| 15 | F750 | 1 |Section End |
| 16 | PES720 | 2 |24VDCc Relay 2NO 2NC |
| 17 | PES728 | 1 |Pneumatic Timer |
| 18 | PES743 | 1 |Pneumatic Timer |
| 19 | PES710 | 3 |9 Amp Contactor 24V DC Coil |
| 20 | PES524 | 1 |Manual Motor Starter Protector |
| 21 | PES741 | 1 |Auxiliary Contact |
| 22 | PED3141 | 1 |VFD Profibus Communication Module |
| 23 | PED2794 | 1 |Control Unit, Sinamics CU305DPp |
| 24 | PED3151 | 1 |Line Reactor A, Simanics |
| 25 | PED3152 | 1 |Power Module A, Sinamics PM340 |
| 26 | PED3154 | 1 |MM440 Drive, 460V, 3pH, 3hp, 5.9A |
| 27 | PEM1160 | 1 |Basic Operator Panel For Seimens Micromaster Drives |
| 28 | PED2795 | 1 |Remote I/O Bus Coupler |
| 29 | PED3031 | 1 |Remote I/O Power Module |
| 30 | PED2141 | 0.4 |Remote I/O Electronic I/O Terminal Block |
| 31 | PED2796 | 1 |Remote I/O Digital Input Module |
| 32 | PED2797 | 0.2 |Remote I/O Digital Output Module |
| 33 | PED2140 | 0.6 |Remote I/O Power Terminal Block |
| 34 | PHSM438 | 15 |Screw (M5 X 0.8 X 12mm PPHTC) |
| 35 | PHSM440 | 31 |Screw(M4 X 0.7 X 12mm PPHTC) |
| 36 | DRB0050 | 1 |Din Rail |
| 37 | DRB0425 | 3 |Din Rail (425mm) |
| 38 | WDA0445 | 1 |Wire Duct (445mm) |
| 39 | WCA0445 | 1 |Wire Duct Cover (445mm) |
| 40 | WDA0515 | 1 |Wiring Duct 1" (515mm) |
| 41 | WCA0515 | 1 |Wiring Duct Cover 1" (515mm) |
| 42 | WDA0545 | 1 |Wiring Duct 1" (545mm) |
| 43 | WCA0545 | 1 |Wiring Duct Cover 1" (545mm) |
| 44 | WDB0280 | 1 |Wiring Duct 2" (280mm) |
| 45 | WCB0280 | 1 |Wiring Duct Cover 2" (280mm) |
| 46 | WDB0445 | 1 |Wiring Duct 2" (445mm) |
| 47 | WCB0445 | 1 |2" Wiring Duct Cover (445mm) |
| 48 | WDB0515 | 1 |Wiring Duct (515mm) |
| 49 | WCB0515 | 1 |2" Wiring Duct Cover (515mm) |
| 50 | WDB0825 | 1 |Wiring Duct 2" (825mm) |
| 51 | WCB0825 | 1 |2" Wiring Duct Cover (825mm) |
| 52 | PEM496 | 7 |Duct Mounting Clip |
| 53 | PEM246 | 10 |Wire Duct Clip |
| 54 | PEM154 | 25 |Wire & Cable Marking Label |
| 55 | F5035 | 1 |Jumper Bar |
| 56 | PEC361 | 2 |Profibus Connector |
| 57 | PEC368 | 1 |Profibus Connector w/PG Port |
| 58 | PES591 | 2 |Relay K Line 2NO 2NC (<i>CE Models ONLY</i>) |
| 59 | Ped713 | 2 |Diode for DC Contactor Coil (<i>CE Models ONLY</i>) |

N/S indicates Not Shown



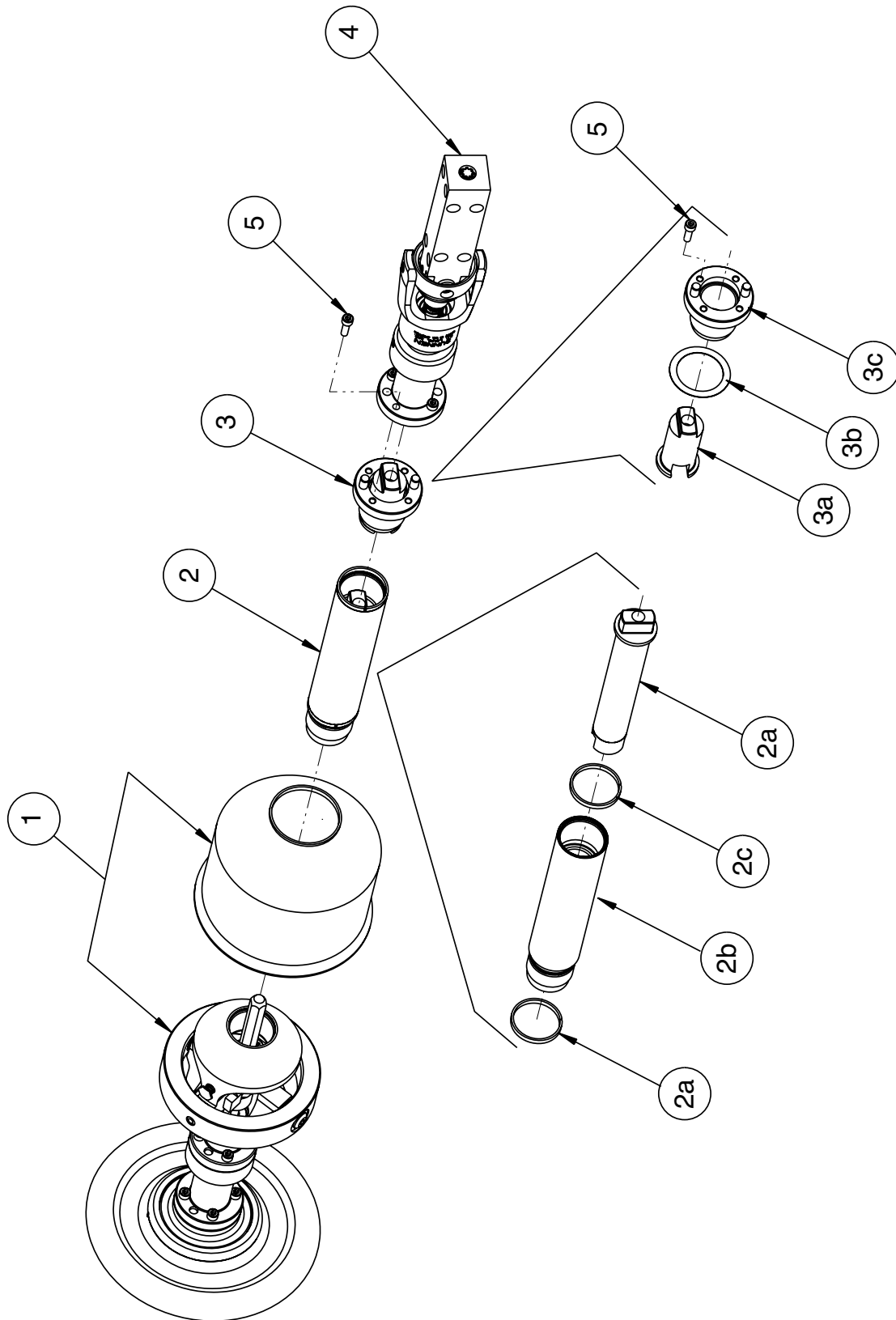
HTA5050

FIGURE 4-D – BRAKING RESISTOR ASSEMBLY

PARTS LIST COVERING FIGURE "4-D"

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|-------------|--|
| - | HTA5050 | Ref. |Braking Resistor Assembly <i>includes</i> |
| 1 | EC3809 | 2 |Bus Bar |
| 2 | EC4566 | 1 |Braking Resistor Cover |
| 3 | EC4567 | 1 |Braking Resistor Holder |
| 4 | KN46 | 8 |Lockwasher, #10, Plain |
| 5 | PEC103 | 2 |Connector Cndt W/Lknt |
| 6 | PED45 | 1 |Resistor, 200 Ohm, 250W |
| 7 | PED2789 | 1 |Resistor, 190 Ohm, 307W |
| 8 | PED2790 | 2 |Resistor, 81 Ohm, 234W |
| 9 | PEM154 | 1 |Wire & Cable Marking Label |
| 10 | PHN125 | 2 |Locknut (1/2" NPT) |
| 11 | PHN129 | 8 |Nut, Hex (10-24) |
| 12 | PHS1073 | 8 |Bolt, Carriage (#10-24 x 3/4) |
| 13 | PHSM438 | 4 |Screw (M5 x 0.8 x 12mm PHTCS) |
| 14 | PHW342 | 8 |Flatwasher (#10) |
| 15 | PHWM529 | 4 |Washer, Fender (M5) |
| 16 | PHWM530 | 8 |Washer, Fender (M6) |
| 17 | PNP299 | 1 |Electrical Decal |

N/S indicates Not Shown



HTA

FIGURE 5-A - ANR HONE HEAD UNIT w/HTA-MPS DRIVESHAFTS

PARTS LIST COVERING FIGURE "5-A"

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|-------------|---|
| 1 | HTA9275 | Ref. |Remote Stone Feed Control Hone <i>(Part of HTA Machine)</i> |
| 2 | MPSE2015 | 1 |Drive & Feed Extensions (150mm / 5.9in.) <i>includes</i> |
| 2a | MPSE22 | 2 |Disassembly Ring (2) <i>(Pkg. of 6)</i> |
| 2b | MPS2015 | 1 |Drive Tube Assembly |
| 2c | MPS2020 | 1 |Feed Tube Assembly |
| 2 | MPSE2040 | 1 |Drive & Feed Extensions (399mm / 15.7in.) <i>includes</i> |
| 2a | MPSE22 | 2 |Disassembly Ring (2) <i>(Pkg. of 6)</i> |
| 2b | MPS2040 | 1 |Drive Tube Assembly |
| 2c | MPS2045 | 1 |Feed Tube Assembly |
| 2 | MPSE2100 | 1 |Drive & Feed Extensions (998mm / 39.3in.) <i>includes</i> |
| 2a | MPSE22 | 2 |Disassembly Ring (2) <i>(Pkg. of 6)</i> |
| 2b | MPS2100 | 1 |Drive Tube Assembly |
| 2c | MPS2105 | 1 |Feed Tube Assembly |
| 2 | MPSE2160 | 1 |Drive & Feed Extensions (1600mm / 63.0in.) <i>includes</i> |
| 2a | MPSE22 | 2 |Disassembly Ring (2) <i>(Pkg. of 6)</i> |
| 2b | MPS2160 | 1 |Drive Tube Assembly |
| 2c | MPS2165 | 1 |Feed Tube Assembly |
| 2 | MPSE2175 | 1 |Drive & Feed Extensions (1750mm / 68.9in.) <i>includes</i> |
| 2a | MPSE22 | 2 |Disassembly Ring (2) <i>(Pkg. of 6)</i> |
| 2b | MPS2175 | 1 |Drive Tube Assembly |
| 2c | MPS2180 | 1 |Feed Tube Assembly |
| 3 | MPS2220A | 1 |Output Flange <i>includes</i> |
| 3a | MPS2221A | 1 |Output Drive Adapter |
| 3b | MPS2223 | 1 |Cover Ring |
| 3c | MPS2222A | 1 |Output Feed Adapter |
| 4 | ANR160 | 1 |Hone Head Unit <i>includes (see Fig. 5-C)</i> |
| 5 | MSN177 | 4 |Screw (#10-32 X 5/8 SHCS) |

N/S indicates Not Shown

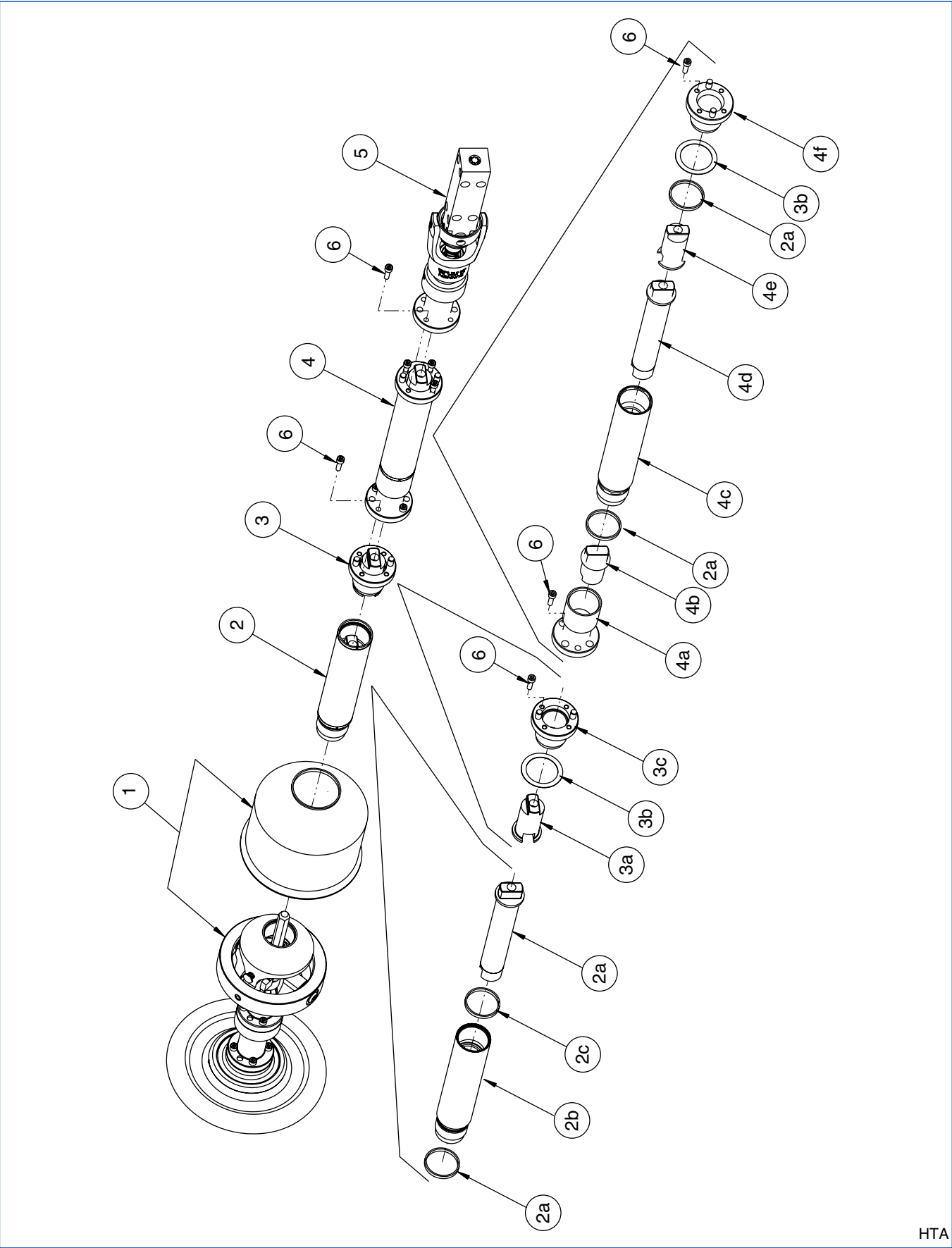


FIGURE 5-B – ANR HONE HEAD UNIT w/HTA-ANR DRIVESHAFTS

PARTS LIST COVERING FIGURE "5-B"

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|-------------|--|
| 1 | HTA9275 | Ref. |Remote Stone Feed Control Hone (Part of HTA Machine) |
| 2 | MPSE2015 | 1 |Drive & Feed Extension (150mm / 5.9in.) <i>includes</i> |
| 2a | MPSER22 | 2 |Disassembly Ring (2) (Pkg. of 6) |
| 2b | MPS2015 | 1 |Drive Tube Assembly |
| 2c | MPS2020 | 1 |Feed Tube Assembly |
| 2 | MPSE2040 | 1 |Drive & Feed Extension (399mm / 15.7in.) <i>includes</i> |
| 2a | MPSER22 | 2 |Disassembly Ring (2) (Pkg. of 6) |
| 2b | MPS2040 | 1 |Drive Tube Assembly |
| 2c | MPS2045 | 1 |Feed Tube Assembly |
| 2 | MPSE2100 | 1 |Drive & Feed Extension (998mm / 39.3in.) <i>includes</i> |
| 2a | MPSER22 | 2 |Disassembly Ring (2) (Pkg. of 6) |
| 2b | MPS2100 | 1 |Drive Tube Assembly |
| 2c | MPS2105 | 1 |Feed Tube Assembly |
| 2 | MPSE2160 | 1 |Drive & Feed Extension (1600mm / 63.0in.) <i>includes</i> |
| 2a | MPSER22 | 2 |Disassembly Ring (2) (Pkg. of 6) |
| 2b | MPS2160 | 1 |Drive Tube Assembly |
| 2c | MPS2165 | 1 |Feed Tube Assembly |
| 2 | MPSE2175 | 1 |Drive & Feed Extension (1750mm / 68.9in.) <i>includes</i> |
| 2a | MPSER22 | 2 |Disassembly Ring (2) (Pkg. of 6) |
| 2b | MPS2175 | 1 |Drive Tube Assembly |
| 2c | MPS2180 | 1 |Feed Tube Assembly |
| 3 | MPS2220A | 1 |Output Flange <i>includes</i> |
| 3a | MPS2221A | 1 |Output Drive Adapter |
| 3b | MPS2223 | 1 |Cover Ring |
| 3c | MPS2222A | 1 |Output Feed Adapter |
| 4 | ANR741 | 1 |Remote Stone Feed Extension Assembly (235mm / 9.25in.) <i>includes</i> |
| 4a | MPS2211A | 1 |Input Drive Adapter |
| 4b | MPS2212A | 1 |Input Feed Adapter |
| 4c | MPS2015A | 1 |Drive Tube Assembly |
| 4d | MPS2020A | 1 |Feed Tube Assembly |
| 4e | MPS2222A | 1 |Output Feed Adapter |
| 4f | MPS2221A | 1 |Output Drive Adapter |
| 4 | ANR742 | 1 |Remote Stone Feed Extension Assembly (483 mm / 19.0in.) <i>includes</i> |
| 4a | MPS2211A | 1 |Input Drive Adapter |
| 4b | MPS2212A | 1 |Input Feed Adapter |
| 4c | MPS2040A | 1 |Drive Tube Assembly |
| 4d | MPS2045A | 1 |Feed Tube Assembly |
| 4e | MPS2222A | 1 |Output Feed Adapter |
| 4f | MPS2221A | 1 |Output Drive Adapter |
| 4 | ANR744 | 1 |Remote Stone Feed Extension Assembly (1086mm/(42.75in.) <i>includes</i> |
| 4a | MPS2211A | 1 |Input Drive Adapter |
| 4b | MPS2212A | 1 |Input Feed Adapter |
| 4c | MPS2100A | 1 |Drive Tube Assembly |
| 4d | MPS2105A | 1 |Feed Tube Assembly |
| 4e | MPS2222A | 1 |Output Feed Adapter |
| 4f | MPS2221A | 1 |Output Drive Adapter |
| 4 | ANR746 | 1 |Remote Stone Feed Extension Assembly (1835 mm/72.25in.) <i>includes</i> |
| 4a | MPS2211A | 1 |Input Drive Adapter |
| 4b | MPS2212A | 1 |Input Feed Adapter |
| 4c | MPS2175A | 1 |Drive Tube Assembly |
| 4d | MPS2180A | 1 |Feed Tube Assembly |
| 4e | MPS2222A | 1 |Output Feed Adapter |
| 4f | MPS2221A | 1 |Output Drive Adapter |
| 5 | ANR160 | 1 |Hone Head Unit <i>includes</i> (see Fig. 5-C) |
| 6 | MSN177 | 4 |Screw (#10-32 X 5/8 SHCS) |

N/S indicates Not Shown

SECTION V

ACCESSORIES & OPTIONAL EQUIPMENT

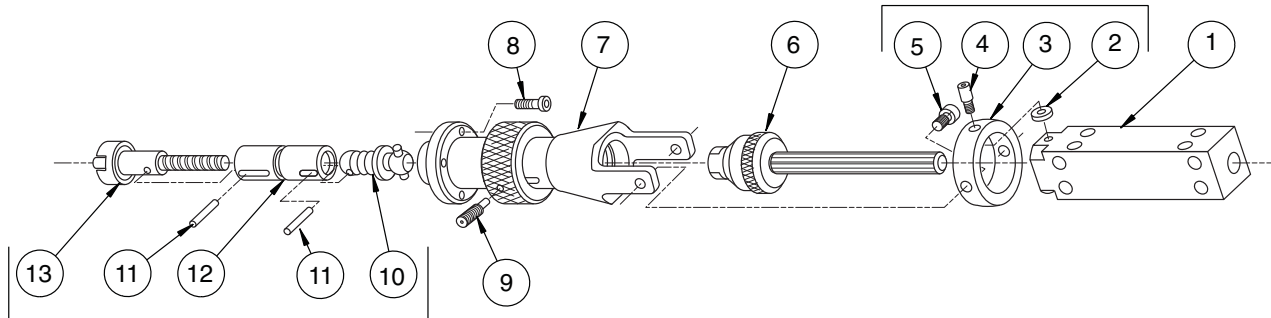


FIGURE 5-C – ANR-STYLE HONE HEAD UNIT

PARTS LIST COVERING FIGURE “5-C”

| ITEM NO. | ORDER BY PART NUMBER | QTY. | DESCRIPTION |
|----------|----------------------|----------|--|
| - | ANR160A | 1 |Hone Head Unit consists of: |
| 1 | AN604 | 1 |Body Assembly |
| - | AN620A | 1 |Ring Set consists of: |
| 2 | AN623A | 2 |Spacers (Pkg. of 2) |
| 3 | - - - | 1 |Ring |
| 4 | AN624A | 2 |Screws (Pkg. of 2) |
| 5 | AN621A | 2 |Screws (Pkg. of 2) |
| 6 | ANR210A | 1 |Pinion Adjustment Assembly |
| 7 | ANR165A | 1 |Drive Housing Assembly |
| 8 | MSN177A | 4 |Screws (10-32 x 5/8" SHCS)(Pkg. of 4) |
| 9 | ANR207A | 2 |Setscrews, Self-Locking (Pkg. of 2) |
| - | ANR170A | 1 |Inner Feed Assembly consists of: |
| 10 | ANR187A | 1 |Ball Link Assembly |
| 11 | ANR189A | 2 |Drive Pin (3/16" Dia. Steel)(Pkg. of 2) |
| 12 | ANR176A | 1 |Coupling |
| 13 | ANR195A | 1 |Feed Shaft End Assembly, Spring and Pin |

N/S indicates Not Shown

NOTES

Like any machinery, this equipment may be dangerous if used improperly. Be sure to read and follow instructions for operation of equipment.

FRACTION / DECIMAL / MILLIMETER EQUIVALENTS CHART

| INCH | | | INCH | | | INCH | | |
|----------|---------|------------|----------|---------|------------|----------|----------|------------|
| FRACTION | DECIMAL | MILLIMETER | FRACTION | DECIMAL | MILLIMETER | FRACTION | DECIMAL | MILLIMETER |
| .... | .003937 | 0,1000 | 9/32 | .281250 | 7,1438 | 21/32 | .656250 | 16,6688 |
| .... | .007874 | 0,2000 | 19/64 | .296875 | 7,5406 | .... | .669291 | 17,0000 |
| .... | .011811 | 0,3000 | 5/16 | .312500 | 7,9375 | 43/64 | .671875 | 17,0656 |
| 1/64 | .015625 | 0,3969 | .... | .314961 | 8,0000 | 11/16 | .687500 | 17,4625 |
| .... | .015748 | 0,4000 | 21/64 | .328125 | 8,3344 | 45/64 | .703125 | 17,8594 |
| .... | .019685 | 0,5000 | 11/32 | .343750 | 8,7313 | .... | .708661 | 18,0000 |
| .... | .023622 | 0,6000 | .... | .354331 | 9,0000 | 23/32 | .718750 | 18,2563 |
| .... | .027559 | 0,7000 | 23/64 | .359375 | 9,1281 | 47/64 | .734375 | 18,6531 |
| 1/32 | .031250 | 0,7938 | 3/8 | .375000 | 9,5250 | .... | .748031 | 19,0000 |
| .... | .031496 | 0,8000 | 25/64 | .390625 | 9,9219 | 3/4 | .750000 | 19,0500 |
| .... | .035433 | 0,9000 | .... | .393701 | 10,0000 | 49/64 | .765625 | 19,4469 |
| .... | .039370 | 1,0000 | 13/32 | .406250 | 10,3188 | 25/32 | .781250 | 19,8438 |
| 3/64 | .046875 | 1,1906 | 27/64 | .421875 | 10,7156 | .... | .787402 | 20,0000 |
| 1/16 | .062500 | 1,5875 | .... | .433071 | 11,0000 | 51/64 | .796875 | 20,2406 |
| 5/64 | .078125 | 1,9844 | 7/16 | .437500 | 11,1125 | 13/16 | .812500 | 20,6375 |
| .... | .078740 | 2,0000 | 29/64 | .453125 | 11,5094 | .... | .826772 | 21,0000 |
| 3/32 | .093750 | 2,3813 | 15/32 | .468750 | 11,9063 | 53/64 | .828125 | 21,0344 |
| 7/64 | .109375 | 2,7781 | .... | .472441 | 12,0000 | 27/32 | .843750 | 21,4313 |
| .... | .118110 | 3,0000 | 31/64 | .484375 | 12,3031 | 55/64 | .859375 | 21,8281 |
| 1/8 | .125000 | 3,1750 | 1/2 | .500000 | 12,7000 | .... | .866142 | 22,0000 |
| 9/64 | .140625 | 3,5719 | .... | .511811 | 13,0000 | 7/8 | .875000 | 22,2250 |
| 5/32 | .156250 | 3,9688 | 33/64 | .515625 | 13,0969 | 57/64 | .890625 | 22,6219 |
| .... | .157480 | 4,0000 | 17/32 | .531250 | 13,4938 | .... | .905512 | 23,0000 |
| 11/64 | .171875 | 4,3656 | 35/64 | .546875 | 13,8906 | 29/32 | .906250 | 23,0188 |
| 3/16 | .187500 | 4,7625 | .... | .551181 | 14,0000 | 59/64 | .921875 | 23,4156 |
| .... | .196850 | 5,0000 | 9/16 | .562500 | 14,2875 | 15/16 | .937500 | 23,8125 |
| 13/64 | .203125 | 5,1594 | 37/64 | .578125 | 14,6844 | .... | .944882 | 24,0000 |
| 7/32 | .218750 | 5,5563 | .... | .590551 | 15,0000 | 61/64 | .953125 | 24,2094 |
| 15/64 | .234375 | 5,9531 | 19/32 | .593750 | 15,0813 | 31/32 | .968750 | 24,6063 |
| .... | .236220 | 6,0000 | 39/64 | .609375 | 15,4781 | .... | .984252 | 25,0000 |
| 1/4 | .250000 | 6,3500 | 5/8 | .625000 | 15,8750 | 63/64 | .984375 | 25,0031 |
| 17/64 | .265625 | 6,7469 | .... | .629921 | 16,0000 | 1 | 1.000000 | 25,4000 |
| .... | .275591 | 7,0000 | 41/64 | .640625 | 16,2719 | 1-1/16 | 1.062500 | 26,9880 |

FORMULAS:

MULTIPLY BY TO GET
 INCHES (in) x 25.4 = MILLIMETERS (mm)
 FEET (ft) x 0.3048 = METERS (m)

MULTIPLY BY TO GET
 MILLIMETERS (mm) x 0.03937 = INCHES (in)
 METERS (m) x 3.281 = FEET (ft)

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